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THE Country GUIDE

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Calgary Stampede Winners

Left: Reg. Kesler of Rosemary, Alberta, all around Canadian Cowboy Champion.

Right: Cody Morris of Hartell, Alberta, all around Canadian Boy Cowboy and Wild Calf Riding Champion.

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THE *Country* GUIDE

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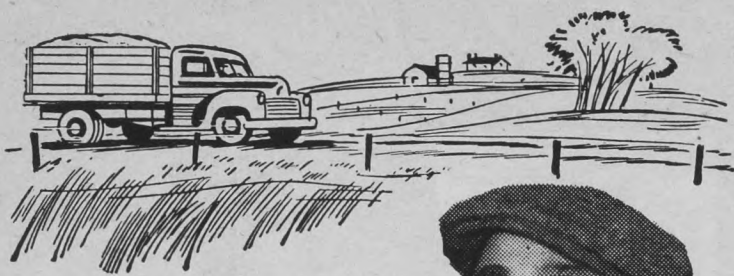
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Under the Peace Tower

I HAVE just returned from an 8,000-mile trip criss-crossing over Canada from here west. On top of that, I was in the Maritime provinces earlier this year. It might be interesting to go over the ten provinces, one by one, and see how the ten provincial politicians are getting along.

British Columbia — Here Premier Byron (Boss) Johnson is having his troubles. It is said that his public relations are inept, feckless, and that he is in trouble. So much so that Hon. Herbert Anscomb, Conservative leader in the coalition, is being groomed as potential premier, just in case. Mr. Anscomb, a forlorn hope a while back, is now discerned to have a real chance as next premier, if the Grits and Tories dissolve their partnership, and renew their former rivalry.

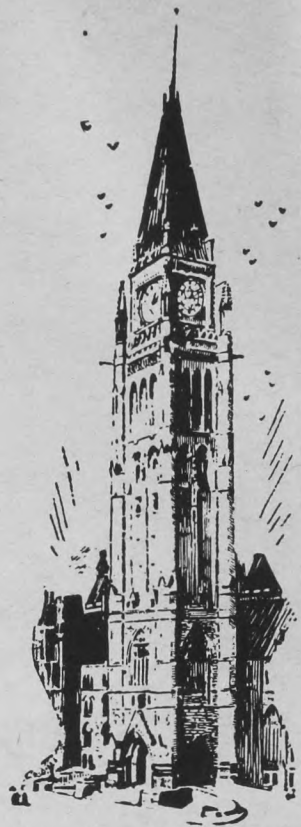
The C.C.F. are not given much chance, unless times get hard or the cost of living goes through the roof.

Alberta — A provincial premier I know, who has good chances to observe all our provincial leaders in action, says that Premier Ernest Charles Manning of Alberta is the best of the lot. He personally seems set for a long run yet. But it is admitted that should Manning for some reason abandon the premiership, the Alberta Social Credit government would be in a bad way.

Non-Social Crediters say that the Manning government is lucky—very lucky indeed. Having struck oil, their financial problems are disappearing rapidly. They do not have to sell Social Credit, nor anything else. They do not even have to preach Social Credit, nor explain how so capitalistic a venture as oil can be rationalized as a Social Credit operation. But the people don't care. Manning's government is clean, honest, and as efficient as any group of elected people is likely to be. As Manning goes, so goes Social Credit in Alberta. And when Manning goes, then out goes Social Credit also.

Saskatchewan — Premier Thomas C. Douglas has been accused of running a red herring government. That is, he covers up his own socialist shortcomings by drawing attention to Ottawa's mistakes. The C.C.F. leader tends to try and fight his provincial battles over Parliament Hill's faux pas. Meanwhile, Walter Tucker, Liberal leader in Saskatchewan, tries to pin the Holy Man from Weyburn down to local issues. My federal friends here from Saskatchewan on the Liberal side say that Rev. Mr. Thomas takes Walter Tucker down the garden path once in a while, on Ottawa's misdemeanors, thus covering up his own political peccadillos.

For a while it looked as if Hon. James Gardiner's \$65,000,000 deal (or steal as some Easterners call it) might provide the middle prairie prov-



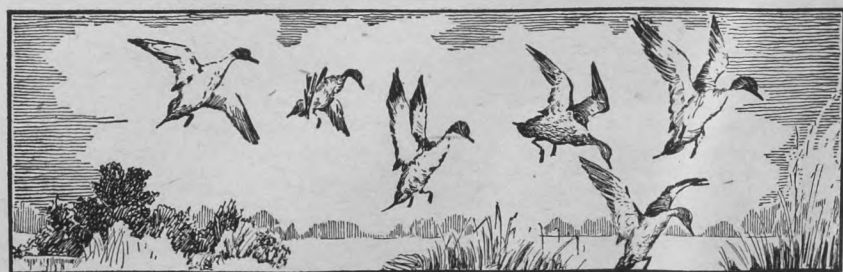
ince with an issue. Right now, it looks as if that moment may be gone by.

But Douglas and Tucker are stalking each other, eyes wary, guns cocked, noses sniffing the political weather. An election in 1951 would surprise no one.

Manitoba — In Manitoba, Hon. Douglas Campbell has it pretty soft. Errick F. Willis, Conservative leader, is not a very tough campaigner. Actually, the real leader is the heir apparent, Duff Roblin. But Roblin is behaving like a gentleman. He defers quite properly to his chief, he never oversteps the mark. He lets it be seen that he is definitely No. 2 in the Tory Camp. But he is biding his time. Errick Willis, nice fellow that he is, is going no place. He lost his chance in 1940 when he almost beat John Bracken. So some of these days, perhaps after next provincial election, Duff Roblin will move up.

Meanwhile Col. James Arthur Ross, sole Progressive Conservative M.P. from Manitoba, could be Conservative leader if he wanted the job. But his health is not good, and he is playing it safe in Ottawa. A man of lots of courage, not afraid to rush in where angels fear to tread, Art Ross fumes because he hasn't the strength and fight he had ten years ago. The spirit is willing but the heart is weak. He is still a power to be reckoned with in Manitoba Conservative circles.

Ontario — In Ontario, Hon. Leslie Frost is giving efficient but unspectacular government. The present Conservative leader is un-Drawing all that the previous prime minister did. Where George Drew yelled at Ottawa in season and out, Premier Frost never lets a cross word come from Queens Park. Smart fellow. For when the provincial elections come in Ontario, instead of the federal Liberals going all out to help Walter Thomson, the great white father from Pickering,



Ontario, they may say something like this; Frost is such a grand guy, it is a shame to try and beat him. Meanwhile, to counteract this, a big love feast is scheduled here in early June between Ontario Liberals and federal Liberals.

Then the grand strategy is this; when the provincial election is called, Frost hopes to win. In doing so he will be crowding right on the heels of George Drew. Just as Drew was on the heels of Bracken. Then who do you think will be the next leader of the Conservatives? You guessed it—Leslie Frost. Many think that if and when there is a Conservative government on Parliament Hill, Frost will head it.

Quebec — I can see Quebec out my window here in the Press Gallery. But I did better than that yesterday. I saw Hon. Maurice Duplessis himself. From anything I can see, and from what I know after 14 years' residence in Quebec, Monsieur Maurice is good for another term. Georges Emile Lapalme, whom I know quite well, hasn't got any real issues.

Duplessis, meanwhile, is still going strong, has made no mistakes which will hurt him at home. He is having a little tiff with the courts, there are mild feuds with the federal Liberals, but frankly, I cannot see where anybody has a hope of beating him.

New Brunswick — That benevolent dictator, Premier John McNair, has the province eating out of his hand. His Conservative opposition leader, Hugh Mackay, has thrown in the sponge. Inscrutable, saying very little and never any of it foolish, McNair is the iron hand in the velvet glove. The Tories are in a bad way in N.B. Yet as recently as 1945, they had a higher percentage of Conservatives in Ottawa than any other province.

Nova Scotia — Hon. Angus L. MacDonald seems to be very strong. The Conservatives have begun a comeback. But their leadership is unproved. Robert L. Stanfield, of the underwear firm, has rallied his scattered forces, and is doing the best he can with what he has. But again, he has no real issue.

Prince Edward Island — One of the conditions under which Premier Walter Jones was to get the vacant senatorship from the Island was that he win another election. Mr. Jones obliged. Preferment is said to be near. So after he goes to the Upper House, it is possible that R. R. Bell, new leader of the Prog.-Cons. on the Island, may have a chance to do more with Hon. Walter Darby, Jones' apparent successor, than he could with Jones. The actual voting was absurdly close, something like 23,000 Liberals to 21,000 Conservatives as I recall it. But the Grits had their little majorities in the right places. I would say the P.E.I. Conservatives were at the beginning of a comeback.

Newfoundland — As long as irrepressible Joseph Smallwood is in Newfoundland, it is hard to see how the Conservative can beat him. Some day he and his dynasty may collapse like the One Hoss Shay, which held together for 100 years, then fell to pieces all at once. But right now Premier Smallwood is very sure of himself. Cocky in fact.



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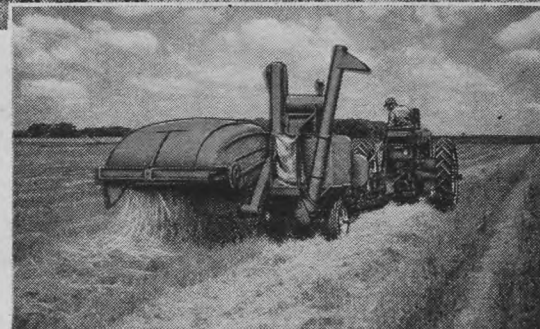
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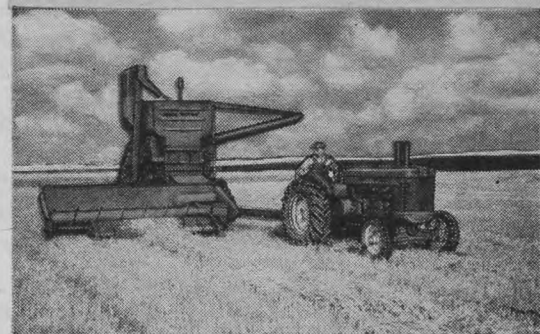
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Dark colored soils are usually highly organic. Thin, dark topsoils signify slow decay of organic matter (prairie), or leached soils under forest growth (grey-wooded).

any), insects (entomology), birds (ornithology), worms (zoology) and bacteria (bacteriology). As it increases in complexity and usefulness as a medium for plant growth, complicated processes involving minerals and organic matter (chemistry) are constantly going on. At the same time, the availability of plant food, for the plants growing above the surface, involves the distribution of air and water and the texture and structure of the developing soil (physics).

These many fields of science represented by, say, a cubic foot of good productive soil, serve to remind us that since all life is supported by soil, we ought to know as much as we can about it. Science itself has developed a special soil science, primarily because there are very many kinds and qualities of soil to be classified and studied. One can imagine something of the complexity of soil study from the fact that almost any cubic foot of fairly good soil will contain life that is far more numerous than the human population of the biggest city in the world. Indeed, this could probably be said of the bacteria alone, to say nothing of molds, fungi, actinomycetes, worms, nematodes, mites and insects.

These numerous life forms live almost entirely on decaying matter. Soil is, therefore, the center of a constant life cycle—birth, growth, death and decay. Decaying matter is plant or animal material—leaves, stems, roots and all dead bacteria, insects and other underground life, as well as larger animals, which are either buried or attacked on the surface and their essences carried underground.

ALL such material is called organic matter. Good productive soils should contain about four per cent of such material. Unfortunately they seldom do, because our methods of farming almost invariably involve selling, burning, or otherwise wasting more of the organic material than is replaced in the soil, either by the application of manure, the turning under of crop residues, the use of green manuring crops, or the use of legumes, or other forage crops in good crop rotations.

Decay of organic materials begins very shortly after a plant or animal dies and the dead material is mixed with the soil. This decay is brought about by the soil organisms, not because they want to make food for a new generation of plants or animals, but because they are hungry. Most of these organisms require an ample supply of moisture, which is the reason why old leaves and other plant material will rot much more quickly where the rainfall is abundant, than in semi-arid areas, such as the brown soil zone of the prairie provinces.

The process of decay begins with the breaking down of the starches, sugars and the proteins that are soluble in water. Among the last materials to be broken down are oils, waxes, fats and lignin. Lignin is very resistant and constitutes an important part of what is called humus, the dark brown or black organic material in the soil, which gives the color to the black soil zone in the prairie provinces. The starches, sugars and the other high-carbon constituents of the decaying material are broken down into carbon dioxide and water. During this process heat is given off, because wood, straw, grass and coal consist largely of hydrogen, oxygen and carbon. When these materials are burned, the carbon combines with the oxygen from the air and forms carbon dioxide in a process called oxidation, during which heat is liberated. Thus, to heat our homes we take advantage of the same chemical process by which the soil organisms rot a pile of manure, or bring about the decay of organic material in the soil.

The nitrogen in the proteins is changed by decay to ammonia, then to nitrites, and finally to nitrates, in which form plants take most of their nitrogen from the soil. This essential process illustrates why many farmers do not like to turn under heavy stubble, because the yield of crop the following year may be lessened. Where this is true it is because there is

(Please turn to page 47)

The LIFE of the SOIL

The part played by living organisms in the soil may prove to be most important in maintaining a healthful food supply for the world

by D. W. NASH

THERE can be no life without soil, and no soil without life: they have evolved together."

The process by which the soil and all forms of life have evolved in company has been a very long one. Indeed, if the entire estimated life of the earth could be compressed into one year, the written history of mankind, which covers no more than 6,000 years, would not begin until four minutes and ten seconds before midnight on the evening of December 31. What is more striking still, perhaps, is the fact that, on the same basis of calculation, the active development of agricultural science would not be recorded until approximately four seconds before the stroke of midnight.

In this exceedingly brief period, during which man's eyes have been opened to the facts embodied in the vast and very complex processes of nature, we have already learned much about the importance of the soils without which we could not remain alive. So rapid has been the march of knowledge during the last 100 years, that it has been necessary to divide the vast field of potential knowledge into many different segments, with specialists working in each, to develop special branches of science. It is a curious fact, however, that there are few, if any, branches of natural science, which are not involved in a study of soils. This is true because soils are mostly formed from rocks (geology) which have been broken down and "weathered" by the rain and the sun (meteorology). Once rock has been weathered and changed by the influence of the rain and the sun it becomes a parent material of soil, and is again greatly changed in the process of becoming soil, by plants (bot-



Left: Grey-wooded soil profile at Goodsoil, Sask. Below: T. J. C. Reid, Moosomin, Sask., and agricultural representative J. E. Smith examine the healthy Hereford herd at The Cliffs Farm.



by RALPH HEDLIN

FARM COSTS *can be cut*

THERE is a high degree of risk and uncertainty in farming. A manufacturer can predict, with a good prospect of being nearly right, how much he will be able to produce in a year, and if he will be able to sell it. In some cases he has a measure of control over the prices that he pays for raw materials, and the prices received for finished products. The merchant who handles and processes agricultural products works on a margin and, though production declines may cut his handlings, the loss is small compared with the cut taken by the man whose crop dries out.

Yield uncertainty is another important farm risk. Yields are cut by such things as vagaries of the weather, depredations of insects and inroads of plant diseases. In many cases careful practice will reduce such losses.

Price variations are another risk that will cut farm returns. Industry can respond to price declines by shutting down if the crisis is sufficiently severe, by reducing staff or salaries, reducing raw material purchases and discontinuing the payment of dividends. These measures are available to agriculture to a very limited degree, if at all. Slow turnover of capital, heavy overhead costs and the small size of the average farm unit all contribute to slowing down the rate of adaptation to economic change. Also, if the fields are planted to wheat and the cows are bred in the spring, a farmer cannot decide in midsummer to shift to the production of barley and hogs, even if a higher net return can be made in these fields of production.

Another factor of importance is national policy, not only in Canada but in other countries of the world. An example is the decision of a few years ago of the Canadian government to permit our cattle to be shipped to the United States. This immediately placed cattle in a favorable position, relative to other forms of agricultural production, yet farmers could not quickly shift production to take advantage of the changed market conditions. Another example is the British attitude toward the bulk buying of raw materials. This has had an influence on the price and sale of prairie products. The interwar tariff walls are a vivid and bitter memory to most farmers.

At least two other factors have a significant influence on farm production plans and net returns. One is the business cycle which has, since the late

1920's, moved wheat prices from high levels down to critically low, and then back up again. Another important factor is the production cycle. Hog prices may be good relative to feed costs, but often so many people go into hog production that pork supplies exceed demand and prices decline seriously. The producer who has hogs at 100 pounds must feed them up to 200 pounds even though he will realize a net loss in the final transaction.

Once a product of a certain quality is ready for market there is little or nothing that an individual farmer can do to influence the selling price. This means that if he is to widen his profit margin he must attack the problem on the cost side. Prairie agriculture is likely at all times to be uncertain and risky, but there are a number of ways in which costs can be cut and risks minimized.

The first way in which a farmer can reduce risks and cut costs is to spend time studying and planning the business side of his farm enterprise. Farms differ and the characteristics of individual farmers are diverse. A farmer can study his own abilities to determine the types of production to which he is likely to be most suited and to which his farm can be adapted most readily. A first-class livestock man who owns a farm that lends itself exclusively to cereal crop production will not be exploiting his personal abilities fully. If he owned a farm on which there was waste land that could be used for feeding cattle he could likely put his cattle on the market with less cost against them than could the man who had to grow all his feed.

AN essential for detailed farm planning is a set of books. The amount of detail in the records will depend on the individual farmer, but they should be sufficiently detailed to reveal that more money was made on cattle than on chickens (or vice versa), and the amount. Many farmers who are raising wheat, oats, barley, cattle, hogs and poultry would be surprised if they saw a complete record of their costs and returns in these six enterprises. It is safe to say that in a majority of cases records would indicate that two or three of the enterprises were less profitable than the others and could be reduced or dropped so that more profitable lines could be expanded.

The story is told of an economist who undertook to analyze a farmer's different projects to see which

were the most profitable, and which were losing money. After some months of work he came up with the answer that the farmer was losing money on them all, and that he would increase his profits by going out of farming! We would hope that this is not typical of western farming, and that most would find that only very minor changes were necessary.

Yield increases are likely to increase net returns. There can come a point where additional yields are so costly that they are a source of net loss, but prairie agriculture is rarely so intense that this situation is faced. Additional cultivation, improved timing of cultivation, fertilization, spraying for weeds or insect pests, improvement of the quality of seed or livestock and other techniques can be used to increase yields and so reduce unit costs.

THERE is not too much that can be done to guard against losses attributable to declining prices or unpredictable national policies. There are, however, annual Dominion-Provincial Conferences of agricultural leaders who make a close study of production and price tendencies which are intended to be helpful to individual farmers in planning their season's operations. The January issue of *The Country Guide* carried full reports on the deliberations of the Dominion-Provincial Conferences since these conferences were begun in the early years of the war. Added to this information the individual farmer has access to the floor prices established by the Agricultural Prices Support Act and so has some indication of prices he is likely to receive.

In any farm program the relationship of production factors is of vital concern. The three factors—agricultural land, labor, and capital—should be combined in such a way that there will be a maximum of production at a minimum cost.

The relationship between these factors has varied considerably on prairie farms. A typical homesteader had a quarter-section of land, his own labor, and capital assets which consisted of a walking plow, a few tillage implements and a drill. There was too little capital for the economic organization of the farm, and where practicable it has been increased.

Since the prairie was first broken one of the problems of agriculture (Please turn to page 37)

Keeping records and studying all economic aspects of the farm business become more important in the face of steadily increasing costs of production

A large tractor (as above) may be the cheapest available power on one farm, yet on another (right) horses may be more economical





MACHINERY CO-OPS

by J. T. EWING

On the Matador co-operative farm two crawler-type tractors pull six drills; another crew brings the seed to the field and fills the drill boxes in short order.

WITH manpower, scarcer than any other commodity in Canada today farmers are looking for ways to use as little of this scarce—therefore expensive—commodity as possible.

Large machines for doing the field work help a lot in keeping down labor costs. But large acreages are needed for large machines to pay for themselves. A man on a half section cannot afford to tie up \$5,000 in a self-propelled combine or to spend another \$5,000 for other "labor-saving" equipment.

Machinery co-operatives are getting a lot of attention these days because they make it possible for each member to get his work done quickly with the most efficient machines without a high per-acre investment. Co-operative farms have these and other advantages, including many social advantages.

Co-operation as applied to farming operations is not a new idea. It has been advocated for many years.

IN the earlier days it was thought that a unit, to be efficient, should be composed of about 50 farmers. Several years of experience with smaller units of five to 20 families seem to indicate that these smaller groups may be more practical.

Members of the Matador co-operative farm, one of the first organized in Saskatchewan, believe it is still too early to determine the size of the most efficient unit, as a larger group has many definite social advantages. They point out that the organization of a smaller unit may be easier during the first few years at least.

The Matador co-operative farm is one of the best examples of low, per-acre operating cost. In 1946, 15 members settled on 8,400 acres (later increased to 18 members and 9,300 acres). The land is leased from the provincial government on a 33-year basis, with option to purchase after ten years.

They now have about 8,400 acres of crop land under cultivation. Recognizing the saving in labor by using big outfits for field work, they are using a full line of equipment of just about the largest sizes available.

They have five track-type tractors—two HD-7's, one TD-14, one D-4 and one gas Cletrac. The reason for the crawler types is the greater power provided by such tractors. A CCIL tractor is used for chores and for cultivating trees, harrowing,

seeding sloughs, and where the big power units would have no advantage.

Tillage implements include five eight-foot tiller combines, two 19-foot Co-op diskers, one 34-foot flexible cultivator, two nine-section flexible drag harrows, two 21-foot disk harrows, four 12-foot rod weeders, a Goble disker and six disk plows for breaking. The six plows and Goble disker are not needed now since all land intended for cultivation has been broken.

It will be noted that with the exception of the flexible cultivator, none of these implements is of the blade-type recommended for soil-drifting control. Members say that this is a problem they will have to deal with more effectively soon. As the soil loses its fibre it will become subject to drifting, as most other soils in the area are, after a few years of cultivation.

Other equipment includes three 28-run seed drills, one 41-run seed drill, four 12-foot self-propelled combines, two 20-foot pull-type combines, three 15-foot swathers and one threshing machine. They also have a fanning-mill-type grain cleaner, a feed grinder, a portable arc welder, a two-yard tumblebug, a potato planter, a road maintainer, two grain loaders, two mowers and a rotary snowplow.

Three 1,000-gallon field fuel tanks and two of the 500-gallon size, besides a 500-gallon underground gas tank at the buildings, complete the equipment.

Of course the seven trucks and two jeeps get a good deal of field use too. They have two five-ton trucks, two three-ton trucks, one two-ton fuel truck, a half-ton pickup and a half-ton panel. Since most of these were used vehicles and reconditioned on the farm, they have only about \$10,000 tied up in them.

It will be seen that they have quite a full line of equipment—good equipment. The total new cost of \$112,550 seems like a high figure until we divide it by 8,400 acres under cultivation. It works out to only \$13.39 per acre or \$6,252.77 per member. Cultivated acreage per member is 469 acres.

Depreciation is charged each year, however, and some of the equipment was bought secondhand and reconditioned on the farm. So their actual investment in machinery, including trucks, field tanks, etc., is \$45,502.86. This represents an invest-

ment of \$5.42 per cultivated acre and \$2,526.67 per member.

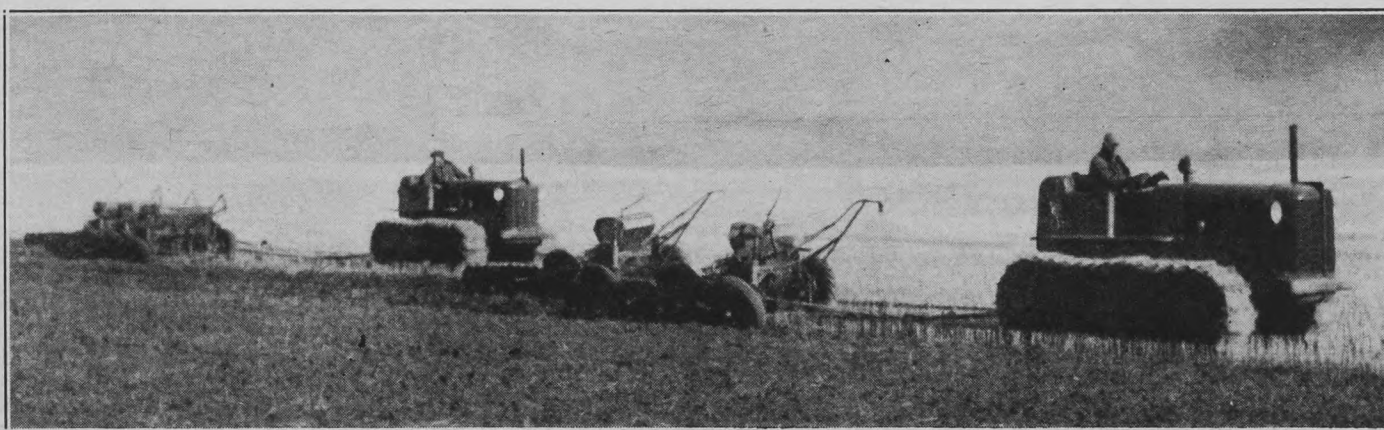
NOW let's see what these 18 men would have to pay to equip 18 individual farms, each with about that amount of land under cultivation. We'll give them equipment similar to that they have now, mostly in smaller sizes of course:

18 Tractors, three-plow @ \$2,400	\$43,200
18 Tiller combines, eight-foot @ \$750	13,500
18 Seed drills, 24-run @ \$450	8,100
18 Drag harrows, ten-section @ \$200	3,600
18 Flexible cultivators, 12-foot @ \$400	7,200
18 Combines, ten-foot @ \$3,200	57,600
18 Swathers, 12-foot @ \$600	10,800
18 Grain loaders @ \$250	4,500
18 Weed sprayers, 30-boom @ \$330	5,940
18 Feed crushers @ \$150	2,700
18 Fanning mills @ \$400	7,200
18 Mowers, seven foot @ \$325	5,850
18 Hay rakes @ \$200	3,600
18 Trucks @ \$2,500	45,000
18 Arc welders @ \$700	12,600
18 Tumblebugs, potato planters, portable engines	15,300
Total (8,400 acres under cultivation)	\$246,690
Equipment investment—\$29.35 per acre.	

ONE of the first of the purely machinery co-operatives in Saskatchewan was the Mt. Hope agricultural production co-operative which was organized in 1945. It is possibly the most outstandingly successful co-operative of its kind in the province.

It wasn't until 1950 that the machinery co-operative idea really caught on in the province. Two of them were incorporated on the same day—July 28. One was the Spruce Grove machinery co-operative near Algrove, organized with five members. The other was the Petaigan machinery co-operative in the Carrot River Valley, with seven members. Each had a membership fee of \$25.

Less than a month later the Harlco farm machinery co-operative was incorporated near Hafford. Each of its four members paid a membership fee of \$10. Also in that month a group of six farmers near Petaigan organized the Killdeer farm machinery co-operative. In October the Lowland farm machinery co-operative was formed at Causeway. Its membership fee was \$25 for each of the four brothers who became its (Please turn to page 40)



With machinery costly, farmers are buying co-operatively and reducing machinery costs

Pooled resources permit the buying of these large units which only the largest independent farmers could afford.

Right: The only waterfowl decoy of its kind in North America. Birds are lured into trap by a man hidden behind panels (upper left) and dog running in and out of sight. Below: Entrance.



[Guide photos.]

Harvesting The Wild Duck Crop

by H. S. FRY

DID you ever give any really serious thought to the love life of a wild duck? I think I must be one of the comparatively few people in North America who have. Frankly, my researches have proceeded only a very short distance, but during the last ten days I have used up quite a few cents' worth of Winnipeg's comparatively cheap midnight electricity, in the study of the subject. Prior to that I had also engaged in a preliminary field survey—a sort of reconnaissance-incuriosity.

I have already gathered a substantial amount of information, which I think I can compress, without difficulty, into two or three paragraphs. I met a man a couple of weeks ago who has been doing research on the subject for at least 13 years, and several years ago he knew so much about it that when he started to write it down, he required a whole book (*The Canvasback on a Prairie Marsh*, by H. Albert Hochbaum: American Wild Life Institute).

I have, for example, often wondered what use a duck has for a long neck. Now I know it is used for "necking." Ducks also use their long necks for eating while standing on their heads. Gertrude, the hen, and Herbert, the drake, each carry, it appears, a sort of love-regulating, internal alarm clock. The arrangement seems to be that Gertrude's alarm clock goes off first, at which time she realizes she is a girl. Almost automatically the alarm clocks in three or four drakes go off, and they realize it is time to flirt. Then the necking starts, but it is a solo proposition for the drakes, because Gertrude is too busy to neck. She scolds, fights and acts just as unpredictable as a woman. She pretends that nothing on earth would please her better than to be left alone. Sometimes she runs or flies away to show them how indifferent she is, but

they know a thing or two and take after her. Eventually, she gets them sorted out and permits Herbert to get up close enough to touch her. That makes them engaged. Then there are two to fight off the others, and soon these become discouraged and go home.

GERTRUDE and Herbert are not engaged very long before they get married and start looking for a house. This is serious business and takes quite a bit of consultation and examination. Ducks refuse to recognize man-made property laws, so as soon as Gertrude finds a place she likes, she gets busy building the framework and decorating the interior of the new house, while Herbert stays out on the waterfront to fend off any and all intruders with what defensive armor he can muster. Gertrude comes out two or three times a day to see how he is getting along and to keep him on the job, but eventually she becomes so engrossed in the prospect of motherhood that she may lay an egg or two before the house is completed. Once she has a clutch big enough to suit her, she settles down to



Director Hochbaum talks with Clarence Tillenius, animal painter and naturalist, beside the big pond, with the hatchery, laboratories and cottages in the background.

A story about the Waterfowl Research Station at Delta, Manitoba, and the approach of science to the development of an important natural resource

the job of turning the eggs into little Herberts and Gertrudes. Occasionally she gets up to take the stiffness out of her legs and walks out to see how Herbert is getting along. About the fourth or fifth day she is likely to discover that Herbert doesn't live there any more.

Poor Herbert! I don't know really whether he is a faithless scoundrel or not, but being of the same sex I am willing to give him the benefit of the doubt. Chances are he got lonely out there treading water all day long, and after about four days of watching the boys down the street practicing headstands, or fooling around in the shade of the phragmites, decided to go over and have a quack or two with them. One thing always leads to another, and perhaps after a few aquatic sports and a couple of air races, they might have decided to do a little neighborhood visiting and perhaps some travelling to get their wings into shape again. One can very easily fool away a summer that way, with time out for molting, and completely forget all about Gertrude. What more natural, then, that later in the summer, some reckless daredevil should some day say, "Come on, fellows, let's go down to Mexico and get shot."

Apparently, most drakes suffer from amnesia in this pleasant fashion, except Delbert Ruddy, whose forebears seem to have established a tradition in the family that the duty of a husband is to stick around at least until all the children are born, and preferably until they are able to look after themselves. Not until then does the well-bred Ruddy say to his spouse, "Goodbye Edwina, it's been nice meeting you," and turn bottom-up in celebration of his freedom.

DR. HOCHBAUM says that ducks really have a language, but I am sorry I have not learned it. Dr. Hochbaum, incidentally, is Director of the Waterfowl Research Station at Delta, Manitoba, on the south shore of Lake Manitoba, about 18 miles north of Portage la Prairie. Lake Manitoba is about 115 miles long and shows a wide expanse of water at its southern end. Here, countless years of pushing against the shore line by the lake ice, have raised a comparatively narrow sand ridge, now covered with tree growth, which stretches for at least 20 miles northeasterly.

Inside the ridge is a huge marsh of 36,000 acres, which is 19 miles long and as much as five miles in width. It is complete with bays, lagoons, pot-holes, huge beds of tall, stalwart phragmites, rising eight to ten feet, the lesser tules, bulrushes and a large variety of aquatic plants, with small meadows here and there, and larger areas of meadow around the fringes of the marsh. There are openings in the ridge of sand between the lake and the marsh, so that the water flows with the wind, from lake to marsh, and from marsh to lake. This freshens the marsh water and makes Delta one of the finest waterfowl breeding areas in all of Canada—and for all I know to the contrary, in all of North America.

Here, then, come the Mallard, Pintail, Gadwall, Baldpate, Green Winged Teal, Blue Winged Teal, Shoveller, Red-head, Canvasbacks, Ring-necked, Lesser Scaup, the Greater Scaup, White Winged Scoter and the Ruddy ducks—all of these species migratory and breeding on the marsh. Here, too, come the sheldrakes, the American, Red Breasted, and Hooded Mergansers.

Five kinds of wild geese breed on the marsh, the Canada Goose, Richardson's Goose, Blue Goose, Lesser Snow Goose, and the White Fronted Goose—all of them at home at Delta, along with the Whistling Swan. They made a pretty sight when

(Please turn to page 68)

Salvage Man

DURING lunch at the Manitoba University dining room one winter's day in 1934, this writer went through the motions of sprinkling salt on the main course of the meal newly set before him. Only a tiny dribble came from the vigorously shaken container.

"You won't get much out of that," said the professor sitting at the next seat. "Crawford has been here before you. Probably all the holes are stopped except one."

This innocent remark illuminated a page in Manitoba's educational history. In August of the previous year over \$800,000 belonging to the institution had disappeared under the mismanagement of the former treasurer. It was a terrific loss to make good during the depression years. If the university was to survive at all it could only be through iron control exercising the most rigid economy. The legislature therefore put through emergency amendments to the university act, enabling the board of governors to place financial supervision into the hands of a comptroller with unusual powers, and the board chose for its iron man F. W. Crawford.

As was expected the new comptroller laid a heavy hand on that institution. His writ scotched many ambitions. No man could have been more cordially disliked than he was in the early years of his stewardship. The incident of the salt shaker was a remark made in fun, but it illustrated the prevailing sentiment.

How did the governing body of the university come by such an instrument for its purpose? What harsh schooling had bred such an inflexible authoritarian? How could one man survive all the displeasure focussed on him till, with the passage of time, his associates could look back on it as the rule of necessity, and extend to him belatedly the cordial hand of friendship?

WALTER CRAWFORD was born on a Manitoba farm four miles north of Chater, the first railway point east of Brandon. His father was a Nova Scotian who homesteaded two years before the arrival of the C.P.R. Like farm boys of those times his early education was more meagre than most of them like to admit. At the age of 17 the slight and diminutive Crawford entered the newly opened agricultural college at Winnipeg.

Immediately the atomic personality to which western Canada has become accustomed began to develop. Youngest in the class and weighing perhaps 135 pounds, Walter Crawford teamed as room mate with the late and respected E. Ward Jones. Jones at that time weighed about 200 pounds and enjoyed a reputation as a wrestler. Before long Crawford was a wrestler too, and their combined bill for furniture breakage must have set an all-time record for that institution. In the end, a sternly disapproving faculty forced them to transfer their physical education to a down-town gymnasium.

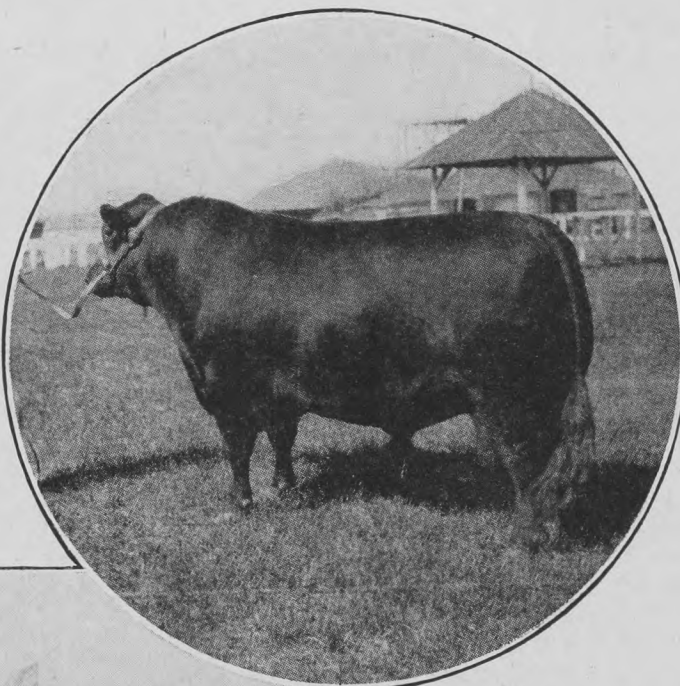
After graduation Crawford got a job as an embryo professor of animal husbandry at his alma mater. In that day, W. J. Black ruled the college, and the Roblin-Rogers gang ruled the province. And the word is "ruled." The light which played on the brows of those politicians, which the faithful mistook for halos, was the same that guided their appointee at the college. It was a baleful gleam in the eyes of the young graduates full of ideals who went on the college staff. None of them remained long, Crawford less than two years. By 1915 he was stumping the province with Hon. Toby Norris to bring about a change which has lasted, with some vicissitudes until this day. To the aggressiveness learned from Jones, was added skepticism from the experienced campaigner about to become Manitoba's premier.

AFTER the election Walter Crawford went East to join one of the university companies raised at McGill to reinforce the Princess Pats, and he went into the front line when that famous outfit first put on the old red patch. The Pats of 1916 and 1917, gentle reader, was no place for a weak stomach. A dozen of Crawford's old school friends went down virtually before his eyes, but he seemed to bear a charmed life. After 14 months of almost continuous front line service, in which he rose a couple of times to the exalted rank of lance-corporal, he was sent to the Bexhill Officers' Training School, and then to the Royal Flying Corps from which he emerged as a fighter pilot.

In this comparatively young branch of the service, Crawford made a discovery that caused him

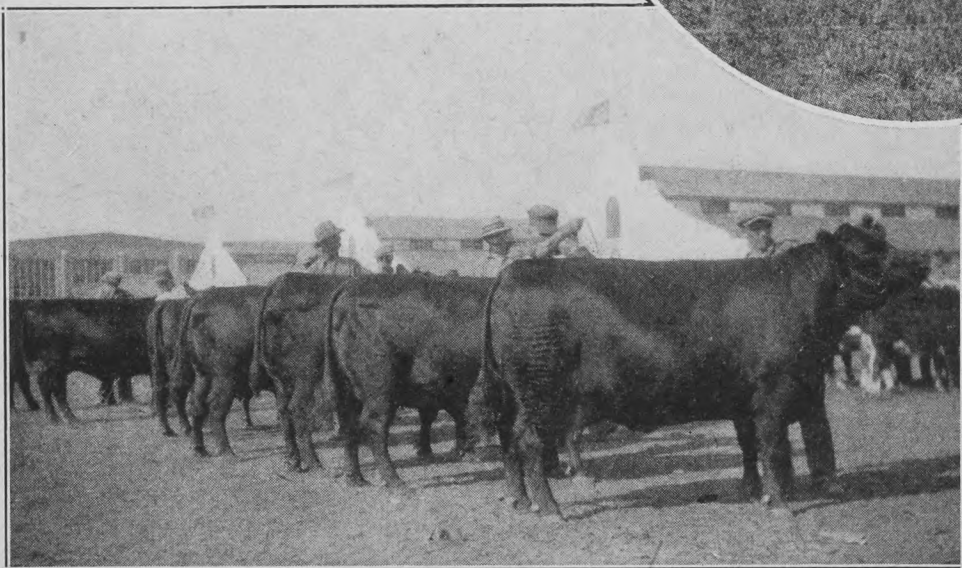
"When there is a breakdown, send for Walter Crawford." That got to be a byword in Manitoba

by P. M. ABEL



In circle: Permit 9th, 38 times Aberdeen-Angus champion for J. D. McGregor. Many of these occasions were under the hand of Walter Crawford as judge.

Left: One of the Angus cow classes judged by F. W. Crawford in Saskatoon in the early '30's. The end cow is Lola of Moose Jaw, owned by W. J. F. Warren, Belbeck, Sask., many times a champion.



F. W. Crawford. He likes 'em black and hornless.

a vague uneasiness. He missed the Spartan severity to which men look forward with misgiving, and on which they look back with pride. Lady Patricia's bully boys were welded into a well-oiled war machine which clicked inexorably. Its newest recruit soon learned that the discipline it demanded of him was the chief ingredient of that unfaltering strength which would support him as far as his courage dare take him. This Royal Flying Corps, whose members behaved like civilians, was something else again. Stout links no doubt, but no semblance of a chain so far as this foot-fighter's calculations could determine. Battle action would doubtless have given him the assurance he needed, but the war ended too soon for him to discover.

IN his quiet moments on the English downs Walter Crawford made use of his livestock knowledge to send a few short articles back to the now defunct Winnipeg Farmers' Advocate. It paid off. As soon as he was back in Winnipeg with his English bride at the end of the war, Editor Thompson collared him for the job as livestock man on the editorial staff of that publication.

This writer doubts if Crawford was really cut out for this kind of work. That part of his vocabulary which seasons his spoken word, doesn't look so well in print. Thompson was practically asking him to fly on one wing. Perhaps he read the future in the Advocate balance sheet. At all events, when the Canadian Aberdeen-Angus Association, in an expansive moment, decided to employ a full-time secretary and offered the job to Walter, he leaped at it.

It lasted for four years. In the end, the heavy weight of falling prices bore the black cattle men's ambitious plans to the ground. They were obliged reluctantly to ask their energetic secretary to go on part time. Crawford loyally accepted the decision and eked out his salary by doing country promotion for the United Livestock Growers, a stockyards subsidiary of the U.G.G. After three and a half years, this too folded up.

It is a remarkable fact that Walter Crawford's first three tries at postwar rehabilitation were all false starts. The odor of (Please turn to page 44)

THE SECRET OF COON CASTLE

There was one tale that Uncle Luce used to tell more than any other to special friends about the great lightning blasted oak, the drama of its inhabitants and his boyhood friendship with old Nat, famous still-hunter

by PAUL ANNIXTER

MY Uncle Luce Tygart was a great story teller. There was one tale he used to tell more than any other and in all the times I heard it, I'm ready to swear Uncle Luce never varied it by a single word, which I can't say for all the stories he told. That one is graven in my memory. It was like part of our family history. Uncle Luce told it only when some special friend would be stopping over with him, and he told it only when we'd all walked down through the hardwoods to look at Coon Castle. I'm writing it all down now because I don't ever want to forget the way it was, and it's a long time since Uncle Luce told his last story.

Yes, there she is, old Coon Castle (Uncle Luce would say as he approached the fringe of this real tale and we stood looking up at the great lightning-blasted oak with the dark hollow between its roots and the two other hollows far up in the trunk.) I never knew who named it, but there's always been coons living in Coon Castle, as long as I can remember and as long as my father could remember. There's a coon pair in it now. Not ordinary coons, mind you, but super-coons. Only a king coon could hold a castle like that. It's a mighty coveted place, you understand, topping this rise at the bend of the river. You see the fungus growth in the hollow and stretching all around the tree? It'd take something as smart as a coon to put a thing like that to use. (Uncle Luce would chuckle and load up his old pipe about here and get it going. He had a stirring resonant voice developed especially for story telling through the years, in an age when human records were mainly a matter of word-of-mouth telling.)

I mind well the old coon that lived in the Castle when I was just a shirt-tail kid. Old Bandit, he was called, and he was known to every hunter in the country. Respected too. In the year 1880 that was, and old Nat Stemline was living in a rickety bark-covered cabin about a mile downstream from here. He hunted and trapped for a living. Sometimes he guided city hunters on bear or deer hunts, but not often. Nat hated the commotion of city men and dogs in the deep woods. He was a still-hunter and never used a dog himself.

He repaired guns for the men of the district and he was an expert fly tier, too. Anglers used to say no one in the country could make artificial flies like Nat. His flies were so lifelike they all seemed about to take wing and swoop out his cabin door. And that's the way they affected the big old rainbow trout, too.

I never knew Nat well, as a man would know a friend or intimate. He wasn't that kind of man. He wore moccasins of his own making. His old leather coat was weathered to the hue of bark and earth and stones and moss and all those things that are

exposed summer and winter to every kind of weather. He wore an old felt hat of the same indeterminate shade. He was as much a part of the woods as the breeze or the leaf shadows. You never saw him unless he wanted you to; you never heard him coming, you'd just turn around and there he'd be beside you.

NAT had a pet coon that had free run of his cabin. He was a wild one. Nat could do anything he liked with him, but no one else could get near him. Hunters knew about the coon and they let him strictly alone under pain of Nat's lasting enmity. Oh, I haven't the words to tell what Nat meant to me, and most of

the boys of the district. He was a romantic figure, dim and fabulous as Robin Hood or Daniel Boone.

I was verging on 13 then and steeped in the Indian tales of Fenimore Cooper and Frank Stockbridge. That was the year I set out to win old Nat over. For Nat, you see, was the living, breathing replica of all the buckskin heroes I'd ever read about.

But I had a time of it trying to woo the old man, for my family didn't approve of him. We Tygarts had quite a name in the land in those days and they had great hopes for me at home. They didn't want me turning into a woodsy and prowling all day after a hound dog. They wanted me to get away from Cane River and become a lawyer or a doctor or maybe even an artist. But it was summertime and there was no school and every day I'd contrive to get away to the woods. I'd watch and wait for old Nat's comings and goings.

There was magic for me in all the old man said. He recognized no gulf between the human and animal worlds. He always spoke of an animal as if it were a human being. But I'd never been able to get close to him. He didn't like kids hanging about his cabin. He'd answer a question or two in a monosyllable, but after that you couldn't get a word out of him.

I had an old Sharps rifle and all my spare time I ranged the woods stalking game, practicing with the rifle till I could drive a nail in a tree at 75 feet and bark a squirrel on a branch 90 feet overhead, bringing it down stunned or dead and never a mark on it, with all the skill of a Leatherstocking hero. I learned dozens of secrets of the woods: the hillsides where the deer bedded and fed, where to find the buried eggs of turtles and alligators in the spring, the secret place in the swamp where the white egrets nested, the daily habits of Big Reddy, the Cane River fox. Reddy was a well-known character and the smartest fox in the country. I had seen him many

times. Most hunters of the region had run him at one time or another with dogs. Often my father had. There was very little chance of bringing Reddy to earth or laying him low. He knew every dog in the region. He'd made fools of more dogs than there were hairs in his brush. But that was the kind of fox most hunters liked.

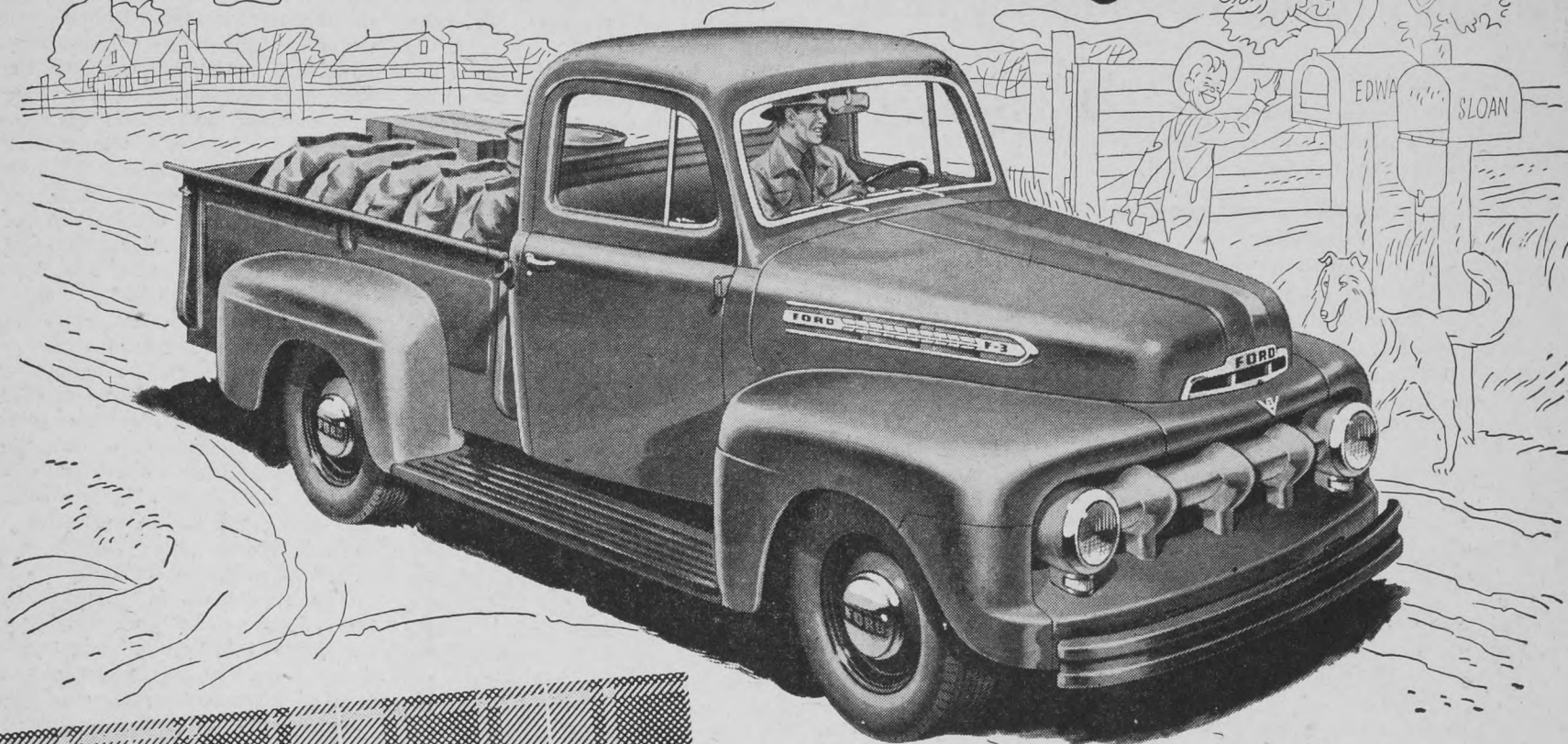
Everyone had wondered where Reddy denned. I tried to find out that summer, but I never could. I found out something else about him though. For years he'd been a respectable fox, but now he was falling from grace. Once I met him at high noon with a fresh-killed pullet in his mouth. Another time he passed close by me with two tell-tale feathers on his lean chops. I didn't like to see that. But I kept all those things to myself. I sensed that they were collateral I might sorely need.

Often I tried to spy on old Nat, but that took a deal of doing. Nat was as sharp as a lynx-cat. You never could see him first. If you tried to follow him he'd know it in a (Please turn to page 49)



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Kitimat Project Assured

Productive capacity of huge new plant will mean an important addition to B.C. income

by CHAS. L. SHAW

BRITISH COLUMBIA'S dream of a huge aluminum plant, opening up a section of the province long neglected except by Indians, prospectors and trappers, has come true.

The Aluminum Co. of Canada has decided to go ahead with the initial phase of a power development and ingot-producing establishment that will ultimately cost an estimated half-billion dollars. As a part of the project a hydro-electric program is being started that will some day rank with Grand Coulee as one of the greatest in the world, developing some 1,600,000 horsepower.

Readers of this column have been aware of the province's hopes for an aluminum plant and of the negotiations carried on in that connection over the past year or so. The subject blew hot and cold as various factors, some favorable and some unfavorable, asserted themselves. But now the uncertainty is ended.

The Aluminum Co., which already has at Arvida and other eastern Canadian centers some of the world's largest plants producing the silvery white industrial metal, had been interested in British Columbia for one reason—the availability of tremendous potential waterpower. The Fraser River watershed is known as one of the greatest sources of untapped hydro energy; the problem was to harness it in a way that would be economically feasible without too much disturbance of traditional interests such as, for instance, the fishery industry which has for generations derived millions of dollars annually from the Fraser River salmon.

There were two major prospective sites, one on the Chilko and the other farther north in the Nechako lake system, most of which is in Tweedsmuir Park. When the Chilko site was first examined the fishing interests protested because the Chilko is one of the best spawning areas for the highly treasured sockeye salmon. The provincial government indicated to the Aluminum Co. that, all things being anywhere nearly equal, it should try to utilize the Nechako, where the salmon resources are of negligible importance at present.

So Nechako was surveyed and, fortunately, it was found that even more horsepower could be developed there by diverting the waters westward toward the coast instead of eastward to the main body of the Fraser. The project would involve the construction of a ten-mile tunnel through a mountain range, at the westward extremity of which the power plant would be located.

The only apparent stumbling block was markets. Would the new plant be able to dispose of all its output at a favorable price in a big enough consuming area? The company made some tentative inquiries as to whether the United States would be interested in helping to finance the project or at least guaranteeing a market.

Well, the company was unable to obtain assurance on either point, but the British government offered to help with a loan in return for priority on

a large proportion of the initial output. The company has access to substantial funds of its own and so, considering all aspects, it decided to go ahead regardless of the United States attitude. After all, the company's experience in the past has been that there is always a demand for aluminum and that the industry has never been able to keep pace with it. With a world-wide shortage of the metal clearly indicated, the risk seemed well worth taking. So construction has already started, and the stage has been set for creation of a brand new industrial community at Kitimat.

This was just another spectacular indication of the industrial expansion that continues to brighten the over-all picture for British Columbians. This and other developments have given everyone confidence—even the political parties, and to such an extent that Liberals and Conservatives are pretty sure to contest the next election as separate groups rather than in continued alliance as a coalition.

The weakening of coalition has been apparent for some time, and the friction that developed during the recent session of the legislature over hospital insurance and various other issues was the tip-off that the form of government which the province has had since early in the war years will not prevail for long, unless there should be another great conflict calling for political unity.

Any doubts that might have existed on this score were removed by Finance Minister Herbert Anscomb, who is the leader of the Conservative wing in the coalition, when he declared over the radio recently that "coalition government will be a thing of the past at the next general election" unless Canada is at war. "Assuming the world is reasonably stable, there will be a straight Conservative candidate seeking re-election under the transferable vote system in every B.C. riding," added the finance minister and Tory chief.

This did not cause a great deal of surprise, although it was considered somewhat unusual that a definite statement would be made at this time, inasmuch as the coalition must try to get along harmoniously with the two parties in double harness until the next election, which may not take place until 1953. Just how they can accomplish that is something that may test the coalitionists' ingenuity.

MOST branches of farm production are sharing the optimism of the politicians. The Okanagan fruit growers are still resentful that Ottawa would not help them pay the cost of the storm damage of two winters ago when thousands of their trees were ruined, but they look for a profitable season anyway. The small fruits industry, however, is worried about the threat of cheap-price competition.

One of the reasons for their anxiety is the knowledge that virtually all of the 22,000-ton Dutch crop of strawberries will be exported this year. Last year eastern Canadian canners bought 1,650 tons of processed and frozen berries from Holland and the volume may be sharply increased this

year. The United Kingdom and Ireland, too, will probably buy heavily from the Continent instead of turning to this country, as in the past.

Then, of course, there is the fear of labor shortage, with defence and other industries competing for people who otherwise might be available for harvesting. But labor shortage is a bogey raised every year, and invariably it is solved in one way or another.

University of British Columbia has high hopes for its new type of alfalfa, rhizoma, which was originally developed at the Point Grey experimental fields several years ago, but which now seems ready for commercial application on a fairly extensive scale.

Unlike standard alfalfa, rhizoma spreads by surface rooting, making it ideal for pasture and erosion control, as well as for hay. Tests indicate that it outyields most of the conventional types. About 1,000 strains of this alfalfa are now on the university's trial grounds, and one of them has been multiplied to the point where it is available to farmers. It is expected to do particularly well in the highlands back of the Fraser Valley, which in the past have not been devoted to an appreciable extent to this type of forage crop.

A COLONIZATION scheme that may result in bringing to the west coast a first-class type of farmer is under way in the Pitt Meadows district, east of Vancouver and north of the Fraser Valley. Actually, it is not technically a colonization plan but a real estate development, although the ultimate result will be similar. The government is not financially sponsoring the scheme.

However, it involves the migration of several Dutch families from Europe, and it is expected that they will feel quite at home in the meadows country where considerable dyking has been done to enclose an area of some 7,000 acres between the Pitt and Alouette rivers and Pitt Lake. Most of this land was previously operated as a ranch and duck shooting area.

The first families from the Netherlands will be moving to the area shortly under the direction of representatives of the Netherlands government on this coast.



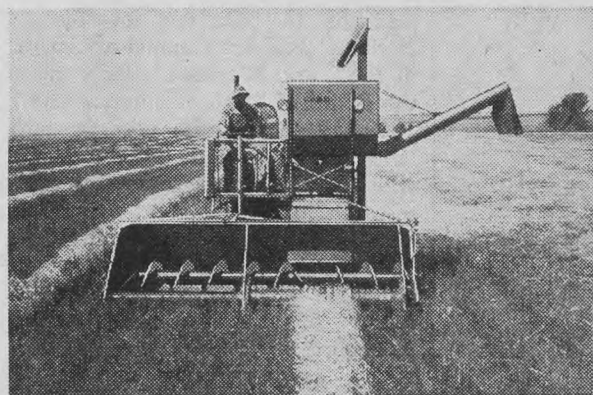
Harry Austin, Armstrong, B.C., sent this 12-foot sunflower picture. Sixty blossoms matured seed heads.

GETS MORE GRAIN, HARVESTS MORE CROPS BECAUSE IT'S BUILT LIKE A THRESHING MACHINE

"SUPERIOR IN EVERY WAY," says Andrew Wickowski.* He explains, "We have two Case 'A' Combines. The first Model 'A' Combine covered 570 acres with no repairs. Before getting this Model 'A' we had used two different competitive machines. We find the Model 'A' is superior in every way to combines previously used."

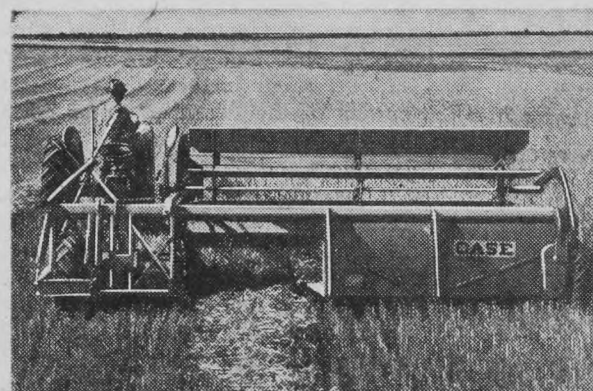
"We combine all kinds of grain and seed crops on our 350 acres of crop land, as well as doing considerable custom combining—all with our Case 'A' Combines."

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For large acreages, here's the combine that saves grain and reduces labor costs. Balanced for easy handling. Hydraulic controlled header raises and lowers by touch of foot pedal. Variable-speed drive means less gear shifting. Nine and 12-foot cutting widths.



Clean-cutting Case Windrower. Places swath on top of standing stubble away from wheel marks for quicker drying, cleaner pick-up by combine. When turning corners, apron travel stops. Permits clear path for turning without driving over cut grain. 12-foot cut.

CASE "A" 6-FT. COMBINE

You can see for yourself why farmers are buying more of the Case "A" than any other six-foot combine. It has more experience behind it. After building spike-tooth threshing cylinders for 109 years, Case knows how to make them thresh tough heads fast, with little or no cracking. The seed-saving capacity of the extra-long straw rack in the Model "A" comes from 70 years of experience with its "agitator" action.

There's more difference than you might think in the performance of combines—especially when the stems are tough, crop is down, and fields are weedy. Talk to men who have compared several kinds of combines, in all kinds of crops in bad as well as good conditions. Take their word for the extra acres you can harvest, the extra bushels you can save, the savings you can make in time and upkeep when you have a Case Model "A."

Look them all over, then you'll know why you're ahead with a Case "A" Combine. To get all the facts, be sure to mail this coupon, today.

Combines for Every Acreage, Every Crop

Case line of pull-type combines includes models with 5, 6, 9 and 12-foot cutting widths; self-propelled combines with 9 and 12-foot cutting widths. Pick-up attachments available for all sizes.

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| <input type="checkbox"/> Self-Propelled Combines | <input type="checkbox"/> Pick-Up Balers |
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Every Fairbanks-Morse pump carries a tag showing actual delivery of water to the tank, certified by an independent laboratory.

All these features, plus the backing of a company with over 120 years' experience in building mechanical equipment, guarantees a water system that will give dependable, economical service year after year. There's a Fairbanks-Morse Water System, whether for deep well or shallow well use, to supply all the water needed for the largest farm or smallest cottage. Most units come fully assembled for low-cost installation. Your F-M dealer can advise the size and type you need. See him, or write your nearest F-M Branch.



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Dr. J. A. Anderson

Important Honor

DR. J. A. ANDERSON, chief chemist of the Board of Grain Commissioners for Canada, was recently elected president of the American Association of Cereal Chemists. Dr. Anderson has been a member of the executive committee, the editorial board, and several other committees of the Association; and he edited the first of the Association's scientific monographs. He is currently working on another volume dealing with the storage of cereal grains and their products.

Born in England, Dr. Anderson came to Canada in 1922, obtaining his degrees of Bachelor of Science and Master of Science from the University of Alberta, subsequently securing his Doctor's degree from Leeds University, England. He joined the staff of the Division of Biology, National Research Council of Canada, in 1931, and became chief chemist of the Board of Grain Commissioners in 1939. He directs the grain research laboratory operated by the Board, which is the largest center for cereal research in Canada, and one of the best of its kind in the world. He has been chairman for six years of the Associate Committee on Grain Research of the National Research Council.

Production and Income

IN 1949, Canadian farmers experienced a \$35 million drop in net farm income; and the preliminary estimates of the Dominion Bureau of Statistics indicate that in 1950 they took a further drop of \$150 million. Notwithstanding this over-all decrease farmers in Ontario, Quebec, Nova Scotia and Prince Edward Island enjoyed small increases, leaving the burden of the decreases to be borne by the farmers of the four western provinces and New Brunswick.

Operating costs and depreciation in 1950 were approximately \$70 million higher than in 1949. This, plus a drop of \$270 million in cash income, made it difficult to hold net income at 1949 levels, despite an increase of \$130 million in inventory changes.

The decrease in cash farm income and in net income, occurred despite an upward change in the index number of the physical volume of farm production. This figure for 1950 is given by the D.B.S. as 139.8, which compares with 164.2 in the record crop year of 1942 and 140.4 for 1944.

NEWS OF AGRICULTURE

These index numbers are based on 100 as representing the average volume of production for the years 1935-39, which explains the high figure of 247.8 for Saskatchewan in 1942, and 169 in 1950. The Bureau explains that if the influence of crop quality were taken into consideration, this would reduce the Saskatchewan figure by about ten points, and the index number for Canada by about three points. The Alberta figure of 127.4 would be reduced by one or two points, but the effect on Manitoba's 138.6 figure would be negligible. Unlike the other western provinces, the British Columbia production dropped last year, to give an index figure of 133.4 as compared with 148.3 in 1949.

25 Years of Service

G. L. LANDON, Poultry Commissioner in British Columbia, completed 25 years with the B.C. Department of Agriculture on May 29. He became district poultry inspector with headquarters at Nelson, in 1926. In 1930, he was made district agriculturist for the Boundary area, with



G. L. Landon

headquarters at Grand Forks. In 1940 he was moved to the Fraser Valley as district agriculturist, with headquarters at New Westminster, and became poultry commissioner in 1946. He has thus served under six ministers of agriculture: Hon. E. D. Barrow, Hon. William Atkinson, Hon. Dr. S. F. Tolmie, Hon. Dr. K. C. MacDonald, Hon. Frank Putnam, and Hon. H. R. Bowman, the present minister.

Appointments

E. E. BROCKELBANK, formerly director of agricultural representatives, Saskatchewan Department of Agriculture, Regina, was recently appointed director of the newly formed Animal Industry Branch of the Department. In this new branch are consolidated the former livestock, poultry, veterinary and dairy branches. The Department is being re-organized into six branches, including admin-

istration, and former branches will now be known as divisions.

Mr. Brockelbank was livestock specialist in the Extension Department of the University of Saskatchewan from 1922 to 1946. He was appointed director, Agricultural Representatives Branch of the Provincial Department of Agriculture, on January 1, 1947. He was born in Grey County, Ontario,



E. E. Brockelbank

and came to the prairies in 1910, farming for several years in the Battleford area. He completed an Associate course in Agriculture at the University in 1918, graduated from the degree course in 1922, and secured his Master of Science degree from the University of Minnesota in 1930.

SUCCESSING E. E. Brockelbank as director of agricultural representatives in Saskatchewan is L. J. Hutchison, who now becomes director of the Agricultural Representatives Branch, Saskatchewan Department of Agriculture. Mr. Hutchison has been with the Provincial Department of Agriculture for 24 years. He was graduated from the University of Saskatchewan in 1927, after which he was first associated with the Livestock Branch of the Department, later transferring to the Field Crops Branch. He served 19 years as field man, agricultural representative, and supervisor of agricultural representatives, during which period he has been stationed at Tisdale, Regina, Whitewood, Woleseley, Arcola and Weyburn. He was appointed assistant director of agricultural representatives in August, 1947.

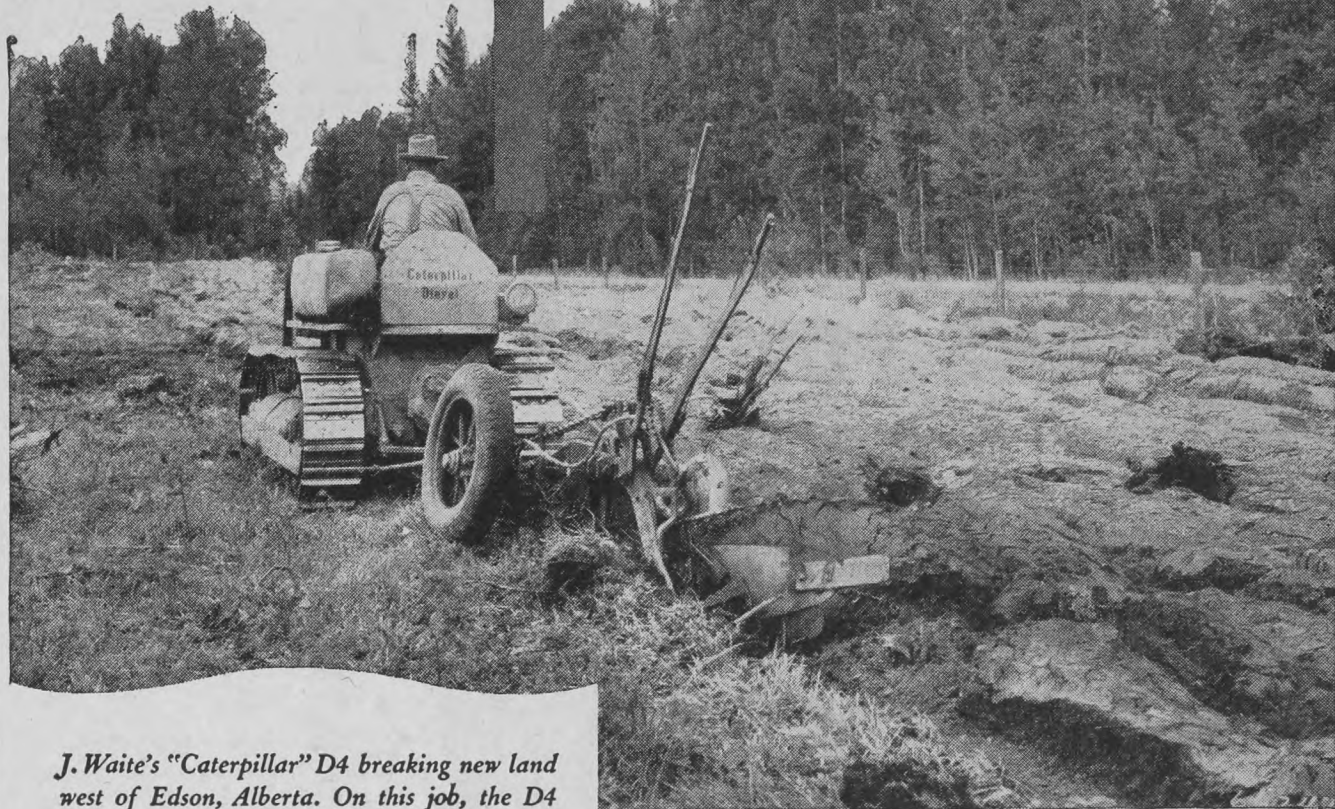


L. J. Hutchison

"CAT" DIESEL TRACTORS

"'Cat' Diesel Tractors are the only ones that will stand the rough work we have to do," says J. Waite of Edson, Alberta.

Rugged!



J. Waite's "Caterpillar" D4 breaking new land west of Edson, Alberta. On this job, the D4 worked 24 hours a day. It used about 22 Imperial gallons of low cost Diesel fuel per 24 hours.

TOUGH GOING . . . breaking virgin timber sod that only a short while ago was covered with trees like you see in the background. But the tougher the better as far as this "Caterpillar" D4 is concerned as it uproots stumps . . . rips through roots . . . plows-under trim branches . . . changes low-productive land into fertile crop acres. The job is done for about 3 gallons of low-cost Diesel fuel per acre in the tank of the "Caterpillar" D4! At last report, owner J. Waite had put more than 20,000 hours on his D4. And were these hours rough? You bet! They were jerk . . . pull . . . around-the-clock hours in logging camps and land clearing!

The hours you put on your farm tractor may not be as rugged as the kind this D4 has weathered. But it's good to know that "Caterpillar" equipment gives you power, traction, economy and long life for the roughest jobs . . . and versatility to handle your farm work in addition to specialty work like land clearing, dugout building, sod breaking, 'dozing and custom work.

Investigate your power requirements . . . investigate "Caterpillar" all-purpose usefulness. Have your "Caterpillar" Dealer help you plan your power program for the future. See him soon!

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You get the new Comfo-Vision cab—"roomiest cab on the road." You get full front visibility through the new one-piece, scientifically curved Sweepsight windshield. You get more positive steering control from a more comfortable driving position. You get super-maneuverability, shortest *practical* turning circles.

Your International Dealer knows your farm hauling problems. And he is part of the country's largest exclusive truck service organization. So no matter where you live, you can always get the parts, accessories or expert service you need. Visit your International Truck Dealer or Branch *soon*.



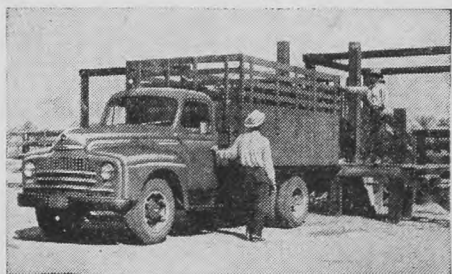
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Model L-162 with Grain Box

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Get It at a Glance

Facts and happenings in agriculture you should know about

PRACTICALLY all of Canada's pure seed of wheat, barley, oats and flax is produced in the three prairie provinces. A severe frost which hit the 1950 crop, seriously reduced the quantity of registered seed from all four crops. The unusual seed situation which resulted will be thoroughly reviewed by the members of The Canadian Seed Growers' Association, who will hold their annual meeting at Saskatoon, June 20-22.

URUGUAY has developed into an important certified seed potato market for Canada. Last year, our sales to Uruguay amounted to more than \$20,000,000 or 25 per cent more than the previous year. More than half of the total was of the Katahdin variety.

BUTANEDIOL, described as a valuable and versatile chemical, has been manufactured from sugar beet molasses by the National Research Council.

CANADIAN-BRED Holsteins sold well at a recent sale in the Argentine, when 143 head brought \$228,338, or an average of \$1,596. High price of the sale was \$40,000 secured for Rockwood T. E. Rocket, a four-year-old, and 58 of his progeny under two years old averaged \$1,663. The 143 head went to 70 Argentina buyers.

WISCONSIN workers with insecticides have found that if some of the new chemical insecticides are combined, a still more powerful insecticide is secured. The most effective combinations so far tested have been DDT combined with Chlordane or benzene hexachloride. In addition, the scientists believe combinations of insecticides may be less harmful to warm-blooded animals, and may reduce the danger of contaminating foods, as well as giving faster-acting sprays.

FIFTY years ago, the total value of machinery and equipment on Canadian farms was \$108,665,000. By 1921 this figure had risen to \$665,180,000. Because of rising price levels and the very rapid advance in farm mechanization, the census figures this year are expected to show a much higher farm inventory of machinery and equipment.

SEVEN additional veterinary service districts commenced operation in Saskatchewan on June 1. This will make 25 such districts serving a total of 74 municipalities according to the Hon. I. C. Nolle, Minister of Agriculture.

AUSTRALIA sells her wheat overseas on a F.A.Q. (fair average quality) standard. The Australia Wheat Board has been opposed to grading Australian wheat but has, for the 1950-51 season, set up a separate pool for all wheat below 46 pounds and above 42 pounds weight. This action, many growers strenuously opposed, believing that its principal effect will be to work hardship on a certain relatively small group of growers and at the same time enable buyers of wheat for livestock feed to obtain it at the cost of production or less.

PAYMENTS under the Prairie Farm Assistance Act up to the end of March amounted to a little more than \$8,000,000 on the 1950 crop, as compared with a little more than \$22,000,000 from the 1950 crop. Number of townships involved was 1,811 in 1950, as compared with 3,086 in 1949, and the number of awards made was 41,425 as compared with 85,138 in 1949. P.F.A.A. payments were made to British Columbia farmers for the first time in 1950, and involved 768 awards in 41 townships, for a total of \$125,874.

DENMARK produced about 13 per cent more eggs in 1950 than in 1949. The new total, 130,000 metric tons, restored egg production to its prewar position and enabled Denmark to export 95,000 tons, or nearly 20 per cent more than in 1949. Also, prewar production was attained with only 80 per cent of the prewar hen population.

LAST year Canada produced 290,000,000 pounds of poultry meat. Of this amount, 242.7 million pounds came from fowl and chicken, 41.3 million from turkeys, 4.8 million from geese, and 3.3 million from ducks.

THE farm crop correspondent is way ahead of the meteorologist in forecasting probable yields well in advance of the harvesting season, according to the U.S. Crop Reporting Board. Crop weather is a complicated study, in which farmers seem to have had more experience than others.

THE New South Wales elevator system is the first bulk-handling system in Australia. The first elevators were constructed about 30 years ago and now consist of 181 local elevators with a total capacity of 24,500,000 bushels, in addition to two terminals at Sydney and Newcastle. The Sydney terminal has a capacity of 8,000,000 bushels.

THE index number of farm prices of agricultural products sold in Canada rose again in March to 288.8, which compares with the previous record of 272 established in February.

THE last severe epidemic of stem rust in New South Wales, Australia, occurred in 1947. At that time there were five comparatively new wheats which were rust resistant and available for seeding. They were named Celebration, Charter, Gabo, Kendee and Yalta. Two new races of stem rust had been recorded by 1949, however, and of the five varieties only Celebration retained its resistance. One or more of them remained partially resistant but Yalta and four other varieties have been dropped from the recommended list for 1951.

AS at December 31, 1950, there were 33,626 individual co-operatives and 1,141 federations in Japan. These represented over 8,000,000 members, who represented over 95 per cent of all farm families, and a very high percentage of Japan's 14,900,000 cultivated acres. Almost 15,000 general co-operatives do half the business for Japanese farmers, providing banking, marketing, purchasing and processing services.

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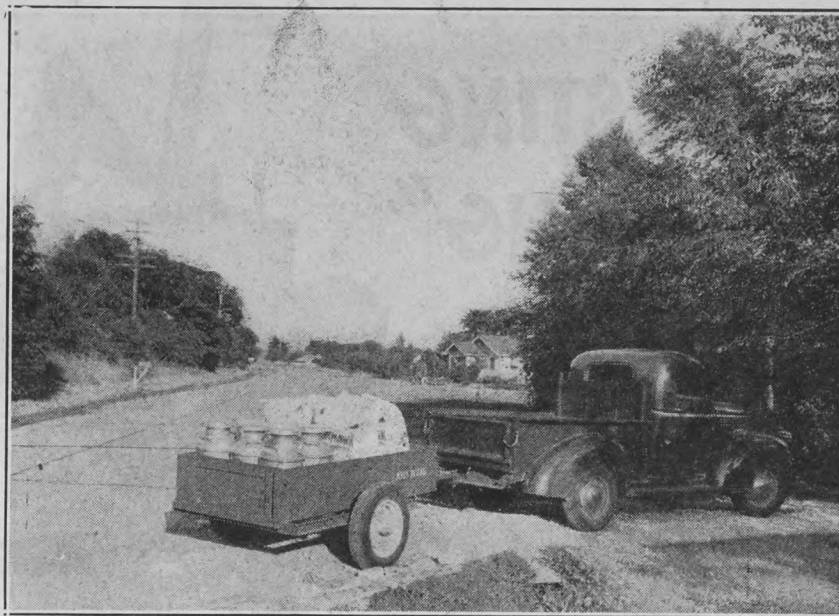


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Mechanization for efficient, low-cost production of healthful milk is a need of most dairy farms.

Starters for Sick Cows

NO doubt many readers of The Country Guide will remember the days before "bakers'" bread became so common. In those days, mother or grandmother used yeast or "rising" as a starter to give the loaves volume and lightness.

An Iowa veterinarian writing in the Aberdeen-Angus Journal, relates his experiences in using the same principle to bring many sick cows back to normal. Just as grandma's bread starter would occasionally "run out" so that she had to get fresh starter from a neighbor, so, it appears, the digestive juices in the stomach of cattle that have been weakened by disease, run out also. The bacteria, hormones and enzymes contained in these juices, and which operate on the food in the rumen of cattle and sheep, die out sometime after the animal becomes so seriously weakened as to refuse to eat. The original cause may be any one of several diseases. There are quite a few diseases which cause the tissues to lose their normal content of water, perhaps because they make the animal feverish and it will not drink sufficient to replace the loss.

The Iowa veterinarian, Dr. Harry S. Lames, reports treating many sick animals by extracting the digestive juices from the stomach of a freshly butchered beef, and injecting them into the stomach of the sick animal after first pumping out the juices already there. The fresh juices are accompanied by all the water the animal can comfortably take.

One illustration from among several will illustrate what happens. A Holstein cow was believed to have hardware disease (swallowing wire or nails, which may puncture the walls of the rumen and cause death). She had been giving less milk and eating very little for several days. Her rumen was full and hard, and her breath carried an odor of peculiar sweetness. Otherwise she seemed normal. Purgatives and other medicines had no effect. When there was no change after three days, a fresh stomach was obtained from a local locker plant and the juices administered about six o'clock one evening. By the next morning the cow had started eating and gave no further trouble.

Since the organisms in the digestive juices decompose quickly at room

temperature, perhaps it will not be long before veterinarians will be able to secure supplies of frozen, digestive juices and will be using them frequently for hastening the recovery of weakened animals after the progress of a disease has been stopped. Experiments are already under way in this direction.

Animal Protein Factor

IN RECENT years the letters APF have come into use as a contraction for "animal protein factor." This, as originally understood, meant one or more vitamins contained in meat, and especially in such animal products as liver, milk, eggs, fish and their products. They were, therefore, quite different from the vegetable protein concentrates such as bran and oil cakes, which had very little, if any, of this particular vitamin combination.

Some vegetable protein products such as soybean oil meal have been found to be about as efficient as tankage or meat scraps on a purely protein basis, but when used with farm grains, they do not seem to be able to produce the growth or thrift secured from rations containing the animal protein concentrates.

In 1948 it was discovered that an important element of APF was vitamin B12, which is required by all animals if pernicious anemia is to be avoided.

During the last year or two, it has been discovered that certain microorganisms such as bacteria, molds, or actinomycetes can themselves produce vitamin B12, as well as such antibiotics as aureomycin, streptomycin, terramycin, penicillin, bacitracin and others. These substances have been experimented with extensively, and something new appears to have been introduced into the problem of nutrition. The result is that the term APF does not possess the special meaning which it once had. The Association of American Feed Control officials has now ruled that the term APF should no longer be used, and that protein feed supplements should be called either "vitamin B12 supplements," or "antibiotic feed supplements."

Antibiotics have germ-killing properties. They appear to help control some kinds of scours, and some of the infectious diseases of swine, especially those affecting the digestive tract. Not too much is known about them as yet,

The only horse that
doesn't need



Absorbine now and then

• Absorbine is especially helpful in relieving windgall, curb, thoroughpin . . . puffs, strains and bruises. A stand-by for 50 years . . . Absorbine is used by many veterinarians. Does not blister or remove hair. At all druggists . . . only \$2.50 for a LONG-LASTING BOTTLE..

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For SAFETY sake use the
PROVEN grasshopper
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Early season application along fence rows, roadsides, and field margins will provide effective control and prevent destructive grasshopper migration into field crops.

Remember too—early season applications of CHLORDANE require a lesser amount of actual insect toxicant per acre.

For approved method of application consult your local agricultural authority or write to:

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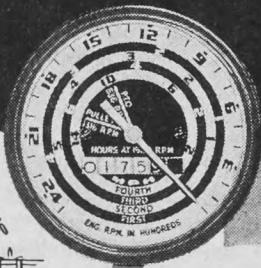
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Dearborn-Wood Bros. Corn Picker

Gets more of the crop and husks ears cleaner because it has . . . flexible gathering points . . . three gathering chains and exclusive snapping bar . . . an extra large husking bed with six husking rolls.

Dearborn Standard Wagon

Low cost and ruggedly built for long life. Has automotive type steering, roller bearings, swiveled reach and welded steel chassis.



Danuser Post Hole Digger

At home and on custom work this tool makes extra money for you. Digs up to 600 holes per day. Seven auger sizes available.



Dearborn Rear-Attached Mower

Especially fast and easy to operate, being fully mounted with Hydraulic Touch Control of cutter bar. You can cut square corners.



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COMBINE

teamed to get

ALL THE CROP

For low-cost harvesting you want equipment that will save manpower, get all the crop and do the job fast when the weather is just right for making top grades. That's what you get when you use the Ford Tractor and the Dearborn-Wood Bros. Combine. Let's see why!

The Ford Tractor delivers its engine power to maximum advantage with minimum manual effort. The exclusive Proof-Meter indicates the correct engine speed for peak efficiency and the correct P.T.O. speeds for P.T.O.-driven combines. Thus, the Proof-Meter tells you the things you need to know for economical engine and implement operation.

The Dearborn-Wood Bros. Combine with its straight-through, non-clogging crop flow has *capacity* from cutter bar to grain spout. It has a 6-foot header, adjustable for height to get all the crop . . . constant speed, low incline canvases for gentle, positive feeding . . . a 48-inch rasp bar type cylinder with "dial" adjustment of cylinder speeds from 430 to 1510 RPM . . . oscillatory motion straw rack heads and straw walker type straw rack with capacity to handle a 12-foot swath. Power is supplied by an independent Ford Farming engine.

P.T.O.-driven Combine also available.



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but it is believed that by reducing the number of bacteria in the intestines they reduce the competition for vitamins and other nutrients in the digestive tract of the animal. So far, antibiotics are not thought to have a direct nutritional value themselves, but they may encourage favorable organisms in the digestive tract, by killing unfavorable ones.

Vitamin B12 is generally beneficial to young animals and breeding animals on ordinary rations. It appears that this vitamin also carries over into the foetus or into the egg, and helps subsequent growth and performance in the young. This is not true, apparently, of antibiotics, which are most useful for growth and for the prevention of digestive disturbances. The function of streptomycin, for example, seems to be confined to the digestive tract. Ruminants, such as cattle and sheep, do not ordinarily benefit from supplements of APF. Steers in Oklahoma, and lambs in Texas lost appetite and weight when fed aureomycin. Dairy calves in Kansas benefitted up to an age of about one month. After about one month, it appears that calves manufacture B12 for themselves. In Wisconsin, beef was found to be twice as rich in vitamin B12 as pork, and in Ohio the transferring of a cud from a mature cow to the rumen of a calf gave promise of an early, favorable start to the rumination process.

As to the place of these antibiotics in livestock feeding in the future, G. Bohstedt of the University of Wisconsin reported recently that they "cannot take the place of good proteins and amino acids, nor of the long array of vitamins that we have in good feeds, including pastures and other good roughages." He recommends that we do not assume that these remarkable drugs "are going to put a premium on shiftless feeding management, and that they are going to bless every ration, no matter how poor." Actually, he believes, antibiotics, because they stimulate growth, may step up the requirement by animals for certain other nutrients such as proteins, vitamins and trace minerals.

What Overgrazing Means

THE tendency to overgraze pastures is one against which stockmen most constantly guard. Authorities at the Manyberries Range Experiment Station, Alberta, say that "experiments have shown that overgrazing the short grass range will result in definite penalties over the years."

The authorities list seven such penalties. The first of these is reduced

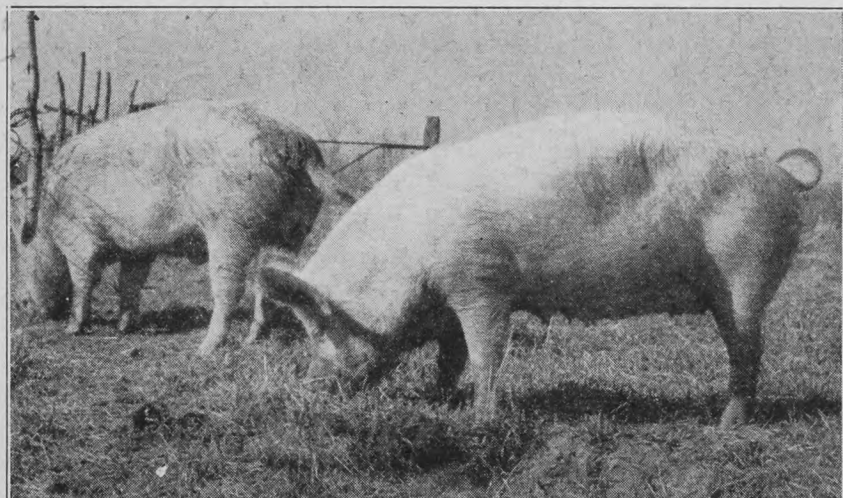
weight, by as much as 300 pounds per head; and also the size of breeding cows. Second, is the reduced summer gains of market cattle, which, of course, directly affects income by lowering the number of pounds of beef available for sale. Third is smaller calf crops, because overgrazing produces fewer calves per hundred cows. Fourth is lighter weaning weights. At Manyberries, range stocked at 20 acres per head has been responsible for 55-pound smaller calves, at weaning, than those from range stocked at 40 acres per head. Fifth is increased risk of loss, because death losses among cows on overgrazed range, during the experiment referred to, have been four times as many as among cows on adequate grass. Where grass is inadequate, cows have more difficulty in calving and have less vitality and ability to resist disease. Sixth is the fact that overgrazing increases the cost of wintering, because cattle can be wintered with a minimum amount of supplemental feed if they are in prime condition in late fall. The seventh penalty is the deterioration of breed type, owing to the fact that even well-bred cattle deteriorate to a marked extent after several years on overgrazed range.

Tall Pig Tales

IN looking over some old numbers of The Country Guide, I came across an item regarding prolific sows. Mention was made of a sow owned by a Mr. D. C. Smith of Westlock, Alta., that raised to weaning age 116 pigs in ten litters, and of three others who wrote of other prolific sows.

This reminded me of a little book I have, "The Pig—its Origin and Varieties," by H. D. Richardson. I quote the paragraph which alludes to large families of pigs. "A Mr. Tileny, of Writtle, in Sussex, had some years back, a sow which, in 13 litters, produced 301 pigs, and out of these actually brought up 177—" No date is given either in this account, or when the book was printed, but it must have been about 100 years ago as mention is made elsewhere of "the late potato famine in Ireland." Also, in speaking of curing: "We have this season had imported a great quantity of hams and other bacon from Cincinnati and Baltimore, in America"—apparently the first time any amount was imported from U.S.A.

Another interesting item in this book is about an "Improved Essex" sow. She was "farrowed in July, 1852, and was butchered at 18 months of age. Alive, she weighed 688 lbs.



(V.L.A. Photo.)
Dorothy, purebred Yorkshire, owned by ex-army veteran Hector Hall, White-wood, Sask., produced 58 pigs within ten months, in three litters—May, 1950 (17), September (22), and March, 1951 (19). Hall began farming on his three quarter-sections in 1947.

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(dressed 653 lbs.), a most unprecedented fact, her offal being but 30 lbs."

Again—"Mr. John Outhwaite, of Bainesse, related at the Thrisk meeting of the Yorkshire Agricultural Society (he laid a wager £10) that "one of his pigs would lay on ten stones (14 lbs.—Ed.) in a month, instead of one a week, which is the usual average of a well-fed pig." This pig gained in weight, from Tuesday morning at seven o'clock, to the Friday in the following week, as much as five stones, seven lbs., an increase of weight unparalleled in the time. The animal weighed 42 stones 12 lbs., being an increase of nearly a stone over the gain of ten stones in 28 days."—Chris O. Atkins, Sask.

New Directions Needed

AN increasing number of qualified persons today believe that the standards set up by practice over long years, for the show-ring judging of livestock, need some radical change. They can point to instances—rare, perhaps—where animals, which have not been breeders but possess excellent conformation, may have carried off grand champion honors at important exhibitions, for two or more years in succession. They can call to mind instances where two experienced livestock judges, working at two large exhibitions in the same year, may give the same animal quite different placings in the show ring. They contend that, whereas the logical end of purebred breeding is more efficient production of beef, milk, lamb, wool, mutton or pork, as the case may be, the competition of the show ring has encouraged the breeders to over-emphasize fancy points to the over-all detriment of livestock improvement generally.

Away from the show ring, our standards of excellence have also been challenged in recent years, particularly with dairy cattle and hogs. No longer is it safe to buy a purebred dairy bull because he is a good individual, or even because his dam may have produced 16,000 to 20,000 pounds of milk in the year. Today, there is a growing appreciation of the importance of using only proven bulls and proven sires of all kinds. The dairy breeds have made the greatest progress in this direction, because of the progress of official records, and the possibility of comparing production of a sire's daughters with those of their dams, or those of his dam, his dam's dam, and his full sisters, if any. Thus we have Record-of-Performance bulls, whose place in the history of the breed is well established, because the known records of their daughters prove their excellence.

In beef cattle, there has been little, if any, performance testing in the same way as with the dairy breeds. The Advanced Registry for Swine has been in operation for many years, but breeders have taken too little advantage of it, and often have misused it. One of the results is that we have substantial divergence of type even within the Yorkshire breed. Consequently, in Canada, we have made much less progress than should have been made in the improvement of this breed, aside from the splendid work done by a few individual breeders. Only the province of Prince Edward Island has made any outstanding contribution to the more rapid development of bacon-type hogs recently.

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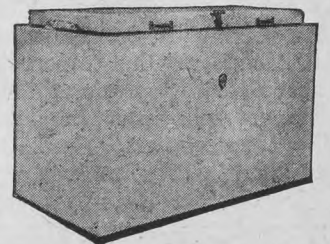
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FIELD



[Hartman photo.]
Tractor power, hay sweeps and stackers make easier work of haying and are a help toward better hay.

Haying Time Soon

THE proper time to begin haying will be right on us before most farmers are ready. Most hay is cut too late for really first-class forage, and it is probably true that early cutting is the first step in making quality hay.

Young grass or legumes are richest in minerals and proteins, the essentials for nutritious feed. So true is this that where pastures are under intensive management, grass is never allowed to get longer than eight to ten inches, because after the growth exceeds this height, its forage quality decreases rapidly. The problem of every farmer who makes hay, therefore, is to determine how much quality he can afford to sacrifice for a little extra yield.

Generally, it is recommended that pastures should be cut when in the flowering stage, and alfalfa and clovers when the first flowers appear. This period provides a happy medium between too little yield on the one hand, and too much woody stalk material on the other. It is reported that at least two-thirds of the feeding value of forage crops is to be found in the leaves, and the young plants have a much higher proportion of leaves than older plants. After these suggested cutting periods, the loss of leaves is likely to offset any gain in yield secured from later cutting.

Successful curing of hay in some areas is, to some extent, dependent on the weather, even under normal conditions. To get cured hay into the stack or the barn, that is, bright, green and cut at the right time, is the hope and ambition of every progressive dairyman in particular. He knows from experience that such hay will be highly palatable and will contain plenty of carotene (Vitamin A) and will also cut down the cost of milk production during the winter months as compared with the cost of heavy grain feeding along with poor hay.

In areas where haying weather is generally warm and dry, curing seldom presents a problem, but where rainfall is more generous, haying is sometimes a tricky business. Unnecessarily long curing in the field will likely mean a poorer quality hay, and

the best practice would seem to be to get hay into windrows from four to eight hours after cutting, to avoid excessive drying and loss of leaves in handling.

Hay should not be stacked or put into the barn with more than 25 per cent of moisture. More moisture than this will tend to make it "rope" when twisted.

Modern methods of hay making use machinery to great advantage. The most economical equipment, however, varies with the acreage to be handled. Some of this equipment should not be purchased unless the quantity of hay each year will run to 250 tons or more.

What Is Soil Sanitation?

WE recognize sanitation as meaning the improvement of conditions relating to the health of human beings and animals. This generally means cleanliness and an effort to remove dirt and sources of infection. The use of disinfectants in poultry houses and stables is a sanitary measure, as is the spraying of fruit trees and other horticultural plants.

We do not customarily think of the soil as requiring sanitary treatment, but the fact that it does need such treatment is almost self-evident from the existence of such a large number of diseases caused by bacteria, fungi and other minute organisms which customarily are carried over in the soil. We speak of soil-borne diseases, meaning that crops are infected with these diseases from the organisms which live over in the soil during the dormant season of plant life.

Soil sanitation is associated with good farm practice. The new antibiotics which have become very valuable to man, because they are now known to kill off undesirable forms of minute organisms, act as sanitary agencies. Dr. G. B. Sanford, of the Canada Laboratory of Plant Pathology, Edmonton, describes soil sanitation as the use of certain natural methods which destroy or reduce the organisms in the soil which cause disease, without seriously affecting other organisms needed for the health of plants and animals. Thus, growing wheat year after year on the same

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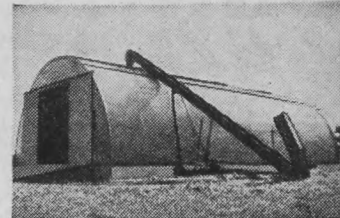
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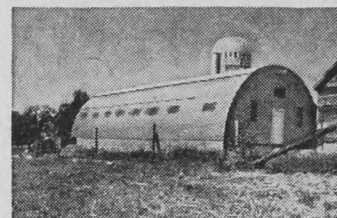
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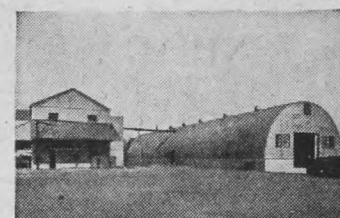
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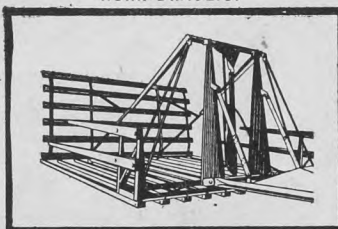
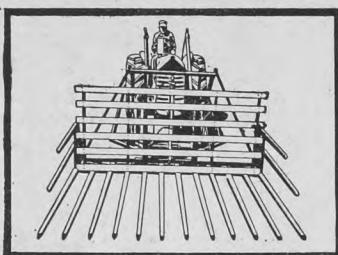
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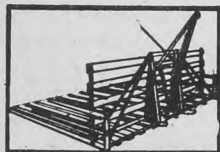
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soil is almost certain to increase the various soil-borne diseases affecting wheat, according to Dr. Sanford. The root rots of wheat tend to build up in the soil, but a crop of oats he considers to be exceptionally effective in reducing the fungi which cause root rot of wheat, even more so than a clean summerfallow. Where oats cannot be used, alfalfa and clover are effective in restoring diseased soil to health. Even the fungi that are quite persistent in the soil are reduced to safe numbers by oats, legumes or summerfallowing.

The rotation of crops as a means of keeping the soil healthy has been recognized for centuries by good farmers. Nature seems to have provided, in plants and domesticated animals as well as in man, that individuals that are well nourished have a tendency to throw off disease and that undernourished individuals seem to attract disease. Since the soil is the focal point of all life, any soil which carries an undue proportion of disease-carrying organisms is, from the point of view of man, a sick soil.

Nature has provided her own cures for soil sickness, but it is man's responsibility to find out about them and to apply them. Thus rotated crops preserve a healthful balance among the soil organisms, not because of the mere fact of rotation, but because of the different soil conditions created by different crops, the varying effects of different root systems on the amount of organic material in the soil or on the texture of the soil, and especially because of the kinds and numbers of beneficial soil organisms created by these conditions.

Balance with Forage Crops

THE Manitoba agronomists and the Manitoba Department of Agriculture are recommending that Manitoba farms should be balanced with forage crops. Weed control on many farms has become costly and sometimes discouraging, according to a recent bulletin obtainable from the Publications Branch of the Department, Legislative Building, Winnipeg, or from any agricultural representative in the province. Summerfallow costs are said to have increased until they now exceed \$5 per acre, because part of the power and most of the tillage machinery on Manitoba farms is needed because of weeds.

For 1950 the estimate is that forage crops occupied only 4.5 per cent of the crop acreage of the province, whereas, "the best advice obtainable indicates that at least 20 per cent of our acreage should be sown to these crops to meet the needs of our soil and livestock." Many farmers are faced with the increasing menace of soil erosion, gullies, bare, unprotected knolls and poorer crops. Pastures often produce far less than they should. Adequate reserves of good roughage are rare. "During the past 30 years," we are told, "an abundance of experimental and practical evidence has been produced, which shows that better farming is possible with forage crops."

The purpose of the bulletin is to urge a better balanced crop program for the soil, for livestock and for weed control. Rotations suitable for grain farms, or farms with some livestock, and for long-term mixed farming, are outlined in some detail.

Phosphorus for Our Soils

IT is generally recognized that of the three elements in which soils are most likely to be deficient, namely nitrogen, phosphorus and potash, phosphorus represents the principal deficiency in nearly all prairie soils. This is why the 11-48-0 formula is so frequently recommended and used. It contains no potash, only 11 per cent nitrogen, and 48 per cent phosphate.

What is true of the Canadian prairies is also true in the wheat states to the south. The North Dakota Agricultural College estimates that if phosphate fertilizer were used on all summerfallow wheat in the state, average yields would be increased by about four bushels per acre, and net farm income by more than \$27,000,000, or \$5.50 per wheat acre.

Not all soils respond equally to fertilizer, but our provincial departments of agriculture, experimental stations and soil scientists are now recommending an extension of fertilizer use and almost uniformly suggest that farmers should try it on a small scale, and over a few years attempt to discover just what rate of application proves to be most economical on each individual farm.

The Saskatchewan Fertilizer Advisory Council recommends dry commercial fertilizers in all soil zones except the semi-arid brown soils. Even here good responses are obtained in favorable seasons on the heavier soils, and it is suggested that farmers try 30 pounds of 11-48-0 on medium texture soils and 40 pounds on the heavier soils, leaving an unfertilized strip for a comparison of results.

In all zones, heavier applications are recommended for the heavier soils. In the dark brown zone, 40 pounds on the heavier soil with applications up to 60 pounds per acre are suggested, and 30 pounds on the medium soils. For the black and transition soils, the board reports consistent increases in yield from phosphatic fertilizers on summerfallow crops, and 40 to 60 pounds per acre of 11-48-0 is recommended. On these soils, and in moist areas such as around Melfort, Tisdale, Kamsack and Meadow Lake, 40 pounds of 11-48-0, or 50 to 60 pounds of 16-20-0 per acre, is suggested for trial on stubble crops. For a start, barley is recommended, because this crop seems to be most responsive to fertilizers.

The grey-wooded soils tend to be deficient in nitrogen, phosphorus and sulphur. Consequently, 40 to 60 pounds of 11-48-0 or 50 to 75 pounds of 16-20-0 per acre are recommended for grain crops, the latter where organic matter is deficient, or where legumes are being grown. Legumes usually respond to fertilizer, and especially sulphur, of which considerable is carried in the 16-20-0 fertilizer.

For the moist northeastern area, rates of 150 to 200 pounds of ammonium nitrate or ammonium sulphate, are likely to be profitable on grasses.

Lesser rates of phosphatic fertilizers are recommended by the Experimental Station at Scott, Saskatchewan, for wheat on summerfallow, based on the experience of the past 20 years. In the early years, rates of from 18 to 80 pounds per acre were tried and the lighter rates found to be most economical. During the past nine years rates of from 15 to 40 pounds per acre have largely confirmed the earlier

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MOOSE JAW--	16-Day Tour	\$115.80
REGINA	-- 16-Day Tour	115.80
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Prices include transportation, hotel accommodation, sightseeing tours.

G-1-51

GREYHOUND

findings of the station. For the nine-year period, the average yield increase from 40 pounds per acre of 11-48-0 has been 5.7 bushels per acre, as compared with an increase of 4.4 bushels from 20 pounds of fertilizer. Scott concludes that the 40-pound rate has been found economical only in years when above normal moisture conditions have prevailed, in areas where the soil and climatic conditions were similar to those at Scott.

The results of fertilizers on Illustration Station farms in Manitoba are reported by the Brandon farm and show increases in yield from the use of 11-48-0 drilled in with wheat on summerfallowed land, to range from .5 bushels to 6.1 bushels per acre. The average result showed fertilizer to be profitable. The Brandon farm urges a more extensive use of fertilizers, but recommends that the farmer be his own experimentalist and test recommended brands on a small scale first.

Earthworms and Fertility

WOULD you have believed that the total weight of earthworms in any given pasture is, in a rough way, equal to the weight of livestock than can be supported by that pasture?

How valid this conclusion is for Canada or the United States has not been established, but it is one of the findings credited to a scientific study of earthworms inaugurated not long ago at the Ruakura Soil Fertility Research Station in New Zealand. The station appointed a specialist to work on the importance of earthworms in the soil.

Interest in earthworms has developed since Charles Darwin, the famous 19th century scientist, made his classic study of the importance of this under-surface form of life. Some enthusiasts claim that earthworms alone can build up fertility of the soil, and this appears to be supported by the testimony of a few individual farmers in various countries, who have systematically added earthworms to their soils over a long period of years, and found the fertility of the soil increasing. Whether such increase is due entirely to the activity of the earthworm population, or whether it is due in part or even primarily to the logical effort of such farmers to supply the earthworms with plenty of vegetable and organic material upon which they feed, has not been clearly established.

It is certain, at least, that our soil scientists and plant nutritionists seem to pretty much ignore the earthworm as a factor in soil fertility. It may be that the reason for this is a practical, rather than a scientific one. Farmers are especially interested in raising crops, and in only a few more or less favored areas does the cultivated crop consist entirely of pasture or hay crops laid down for a long period of years. Cultivation destroys earthworms, on the one hand, and on the other, it has been shown by the New Zealand Station that a heavy worm population in the soil is not essential to fertility.

The same station, however, has reason to believe that worms may play an important part in erosion control. It was found at Ruakura, that by comparing sodded areas containing high and low worm populations the run-off during rain was higher from the sod with the low worm population. Incidentally, it was estimated, in one area studied in New Zealand, that the

number of worms per acre varied between two million and five million, with a maximum weight of about one ton per acre.

Production per Man

WHEREVER a machine or a piece of equipment can be devised to do a particular job well, and wherever the use for it is sufficient to keep it busy, machine production is nearly always, if not always, more economical than manpower production. This is a basic fact of modern industrial economics.

Machines are lifeless. Their only function is to release human effort for other work, so that the needs and wants of human beings in a particular society or nation may be satisfied more completely and more quickly. Their duty is to increase the average output of goods and services per worker.

The function of agriculture in society is to produce, not only for those engaged in the industry, but for those who are too busy doing something else, to grow their own. Agriculture was slow to adopt the machine, but during the last 50 years and particularly during the last ten years, the mechanization of agriculture has proceeded very rapidly. It will, however, have failed of its most important function if it has not increased production per farm worker.

How much actual farm labor has the greatly increased amount of machinery now on farms actually replaced? We know that on many farms the number of men employed is fewer now than some years ago, notwithstanding that the crop acreage has increased. We know too, that this is true on the better small farms as well as on the efficient larger farms. It is unfortunate that we do not know more precisely the average result in output per worker for all prairie or all Canadian farms.

We do know that in 1949 Canadian farmers spent nearly \$265 million for machinery and repairs and that approximately two-thirds of this amount was spent by farmers of Manitoba, Saskatchewan and Alberta. This averages out to approximately \$650 per prairie farm, including all farms of five acres or more.

What was gained by this expenditure? Certainly farm work was made easier for many farmers and some labor was saved. On the other hand fixed charges were increased by the amount of interest and depreciation, while cash costs were not only increased but made more rigid by the cash costs of fuel, oil, grease and repairs, as well as by the higher cost of operating labor. Remembering that the function of machines in the economy is to increase output per man by an amount sufficient to more than justify the machines, where is mechanization taking us?

An agricultural advisor to the Ford Motor Company in Britain recently suggested that in British agriculture, mechanization has not so far fulfilled the promise it gave a few years ago. He calculated that the average tractor of today replaces the work of barely two horses, and that it required two and one-half tractor outfits with their due proportion of combines and root harvesters, to replace one man on the farm, and that the average milking equipment (two or three units) is getting rid of only one-third of a man.



1/2-ton 6 1/2-foot pick-up

It's a stand-out truck in looks and in money-saving!

SPEND less for gas! Spend less for repairs! Save all the way every day! Get the pulling power, the staying power, the earning power of a far-advanced Studebaker truck!

All year long—under all kinds of driving conditions—you can always count on a Studebaker truck to keep down your operating costs.

That's because Studebaker engineers use straight common sense in designing these trucks. There's wear-resisting ruggedness in

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Get your share of the long-lasting, long-range operating economies that a new Studebaker truck can assure you.

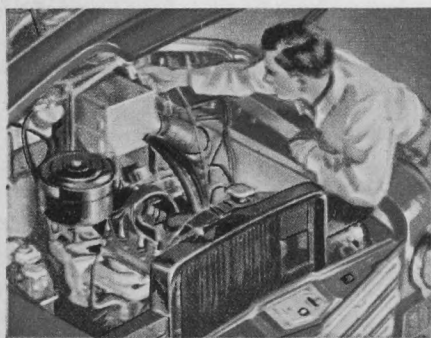
Stop in at a nearby Studebaker dealer's showroom. See what a full measure of value you can get for your truck money!

BUILT IN CANADA BY CANADIAN CRAFTSMEN

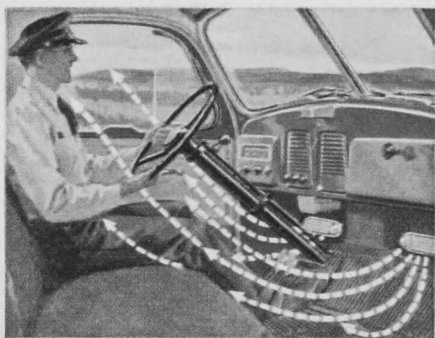
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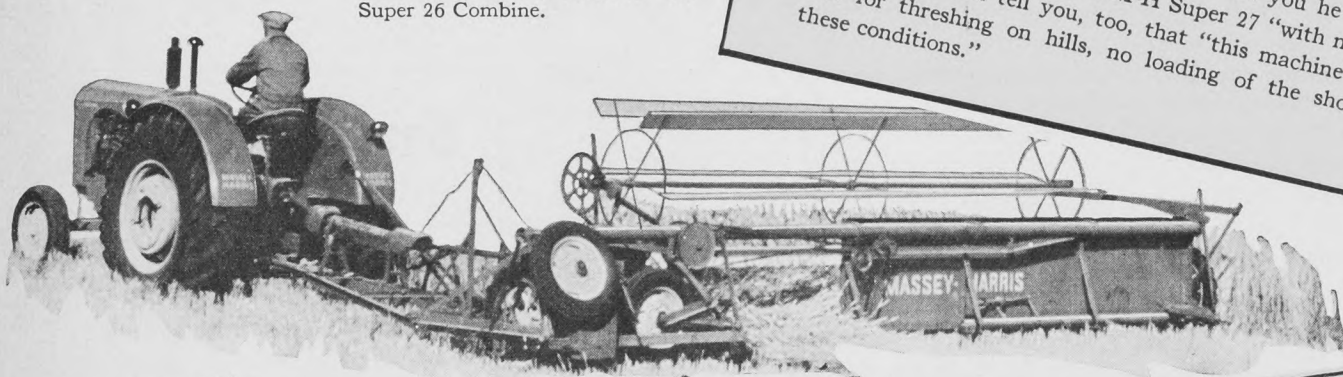
SATISFIED OWNERS ARE THE BEST MASSEY-HARRIS ADVERTISERS



Here's what some of them are telling their neighbours about the top-notch performance of Massey-Harris Combines and Swathers

Sure, we run advertisements in the farm papers to show why it pays to buy Massey-Harris Combines. But our BEST advertising is the word-of-mouth praise by the men who own and operate them. We invite you to ask ANY Massey-Harris owner, in the West or in the East, about the capacity, the clean threshing, the easy handling, the all-round top-notch performance of the M-H Super 27 or Super 26 Combine . . . or about the excellent work done by Massey-Harris Swathers. Here are a few examples of the answers you will get.

Massey-Harris No. 6 Swather, with 16-foot cut, is the perfect "team mate" for M-H Super 27 Combine. The No. 4 Swather, with 12-foot cut, matches the Super 26 Combine.



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Maurice Lefreniere, Gravelbourg, Sask., will tell you: "In 1950, I combined 1,250 acres of wheat and 50 acres of flax with my new M-H Super 27, under every kind of weather condition. The machine proved satisfactory in every case. I found the unloading auger very fast and efficient."

Massey-Harris Super 27 Combine cuts (or picks up) and threshes a 16-foot swath. With this machine one man can harvest 65 or more acres a day, under favourable conditions.

30,000 Bushels Without Repair

Albert Sewell, LaFleche, Sask. will tell you that last fall he put 30,000 bushels of grain through his new M-H Super 27 Combine and it will be ready to go again in 1951, with few (if any) repairs of any kind. "Certainly, nothing major," he says.

Clean Threshing on Hills

Dean Ferguson, Hopeville, Ont., will tell you he combined 1,000 acres in 1950 with his M-H Super 27 "with no cost for repairs." He will tell you, too, that "this machine is excellent for threshing on hills, no loading of the shoe under these conditions."

No Swath Spoilage in 3 Years

H. D. Paul, R.R. 4, Edmonton, Alta., will tell you he and his brother have swathed 800 acres a year with a M-H Swather for the past 3 years. "It lays the swath on the stubble in the proper manner," he says. "We have never had a bushel of grain spoil because of wet weather, and the swaths are easy to pick up."

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General Facts about 2,4-D

A review of general opinion about the use of selective chemicals for weed-killing

CHEMICAL weed killers have been known in this country for at least 40 years to the knowledge of this writer. The earliest of his recollections is the use of iron sulphate for the killing of dandelions in lawns. The same substance was also used experimentally in field crops. It killed the dandelions, but had the disadvantage of blackening the grass until it grew out far enough to be cut.

At the Brandon Experimental Farm, herbicides have been tested for over 20 years. The first to be used were the non-selective, sterilizing herbicides, such as Atlacide and sodium chlorate, which kill all plant growth and make it impossible to grow a crop for several years. Such sterilizing compounds are still useful, but are confined on farms to the treatment of small patches of deeply rooted, undesirable perennials, which are difficult to cure by cultivation; or by the newer selective chemicals.

Next came the dinitro compounds, one of the first of which was Sinox. These killed many weeds common in crops and did not damage the grain. More recently still, these have largely been replaced by a large group of compounds designated as 2,4-D and 2,4-5T, which are more highly selective. Still more recent are products based on chlorine, such as TCA, which are useful for the killing of grass. The newest of these is IPC (Isopropyl-n-phenyl carbamate).

No doubt many farmers are confused, as the Brandon officials suggest, by this sudden array of chemical compounds, all highly advertised by manufacturers and the retailers. D. A. Brown of the Brandon Farm summarizes the general situation in this way: "Even the best herbicides will not do everything the farmer hopes for. Tillage for weed control and moisture conservation must continue almost as intensively as before the introduction of chemicals." The dinitros are available and are safer than the 2,4-D products, for controlling the more susceptible weeds, such as mustard and stinkweed in new stands of alfalfa and sweet clover. The main use for the wide variety of 2,4-D products is to kill the large number of susceptible weeds in grain crops, but in addition, 2,4-D and 2,4-5T or a mixture of the two, will kill certain kinds of scrub in pastures. Nevertheless, farmers, before using any of these chemicals, should first learn what weeds they will kill, the best time to spray, the amount of chemical to use and the possible effect of the chemical on each crop to be sprayed. The latter is necessary because, "the most selective herbicide yet discovered will inflict more or less injury on any and all plants, if it is not carefully applied."

THERE are two stages of growth during which grain crops should not be treated with selective chemicals. The first stage is from the first emergence of the plant to six inches in height, and the second from the late shot blade until heading is complete. It is always risky to treat new stands of alfalfa and sweet clover with 2,4-D.

The new grass killers such as TCA sterilize the soil for short periods.

IPC does not sterilize. All grass-killing herbicides, however, are costly, and like the earlier non-selective chemicals, cannot be profitably used on farms for other than patches of less than an acre.

Farmers will also want to know whether chemical weed control pays. No one can answer this question precisely, but D. A. Duncan of the Brandon Farm reports that district experiment substations in southwestern Manitoba for the past three years have been calculating costs and increased yields following 2,4-D applications. Using 1950 prices at Brandon, and estimating that a farmer would spray 200 acres with his sprayer, and that it would be good for ten years, the conclusion reached was that the total cost of spraying, exclusive of labor and the cost of operating the tractor, would be 66 cents per acre for a tractor-mounted type of sprayer and 93 cents per acre for the trailer-mounted machines.

As to the increased yields, Mr. Duncan reports that at the Goodlands Substation, "the three-year average of spraying versus non-spraying shows an increase of 2.9 bushels per acre in favor of spraying." Figuring wheat at \$1.21 per bushel and the cost as given above, it was calculated that the net return per acre would be increased by \$1.87 if a tractor-mounted sprayer were used, and \$1.60 per acre if the sprayer was trailer-mounted.

THERE were, however, other benefits from the use of chemicals, one of which is the reduction of weeds which would otherwise increase dockage and cause extra wear and tear on harvesting machinery. Another is that efficient weed control may reduce serious plant diseases in other crops. The Canada Department of Agriculture, Ottawa, calls attention to the fact that in the United States the sugar beet crop suffers from curly-top disease which is spread by the beet leafhopper, which feeds on Russian thistle and other worthless annual weeds. In Canada this disease is not troublesome, but the same virus attacks tomato crops in parts of British Columbia and causes what is known as western yellow blight. As yet, we lack complete knowledge of what other diseases are spread by insects which habitually infest one or more of the other weeds, and which can be killed by the selective chemicals.

At the Scott Experimental Station in northwestern Saskatchewan the yield factor was studied over a four-year period from 1947 to 1950 and the conclusion was reached that the "four ounces per acre of the ester 2,4-D resulted in an average increase of just over two bushels."

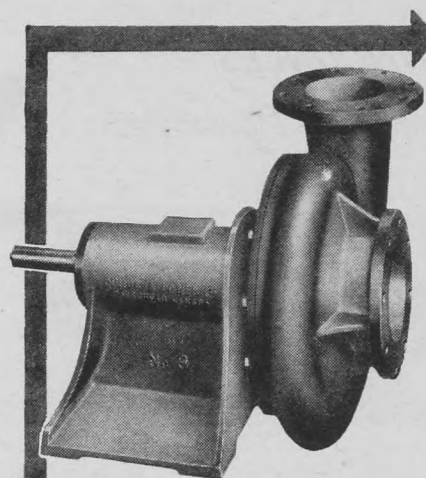
Experience at the Brandon Experimental Farm last year indicates that the time to spray should be guided by the stage of crop growth rather than by the actual height of the grain, which is the usual basis for 2,4-D recommendations. Weather, land and stage of growth have much to do with the reaction of cereal plants to weed sprays, but last year plants 12 inches in height were very little more advanced in growth stage at Brandon than 1949 plants five inches high.—H.S.F.

It's going to be a hot summer!



... as usual, certain areas in Western Canada are due for long dry periods this summer. An efficient irrigation system may well mean the difference between crop failure and a bumper harvest.

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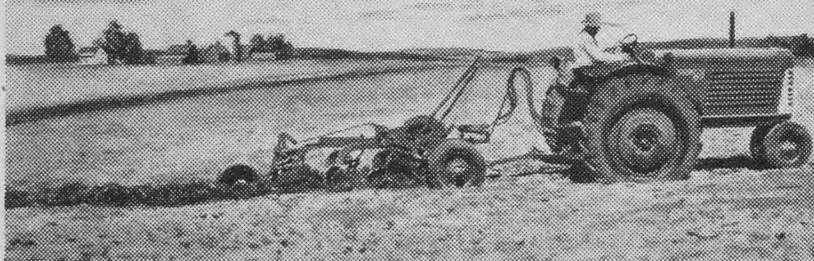
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New "Radius Curve" Plowshare!

OLIVER ANNOUNCES

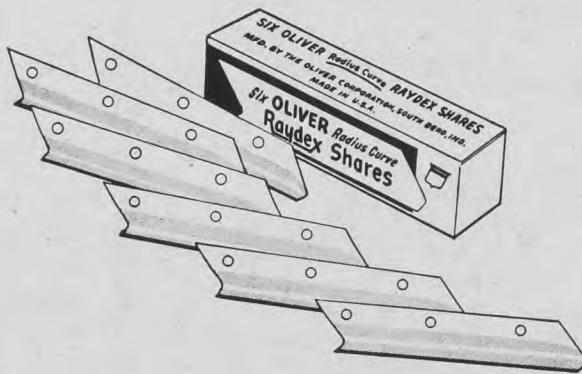
New Feature for Replaceable Plowshares



Oliver, originator of the low cost, replaceable plowshare, introduces an improved Raydex share with a "Radius Curve" point—another important achievement in plow design. Note the new contour on the leading and trailing edges. This new share with its "Radius Curve" point makes the famous Oliver Raydex plow bottom lighter in draft than ever. Besides, it stands greater plowing strains. And, it's specially heat-treated to make it tougher and longer lasting—stress annealed along the fitting edge to prevent breakage.

Before you buy your next plow, it will pay you to investigate the Raydex plow bottom with its new "Radius Curve" share—the combination that enables you to do a better all-round job of plowing than with any other bottom under similar conditions.

First, you will realize substantial savings in tractor fuel and time because Oliver Raydex bottoms with "Radius Curve" shares are easier to pull. Second, "Radius Curve" shares end the nuisance of resharpening and repointing. They're so low in cost you can discard them when worn out. A brand new, factory machined, perfect fitting, "Radius Curve" share costs no more than a blacksmith charges for resharpening an ordinary plowshare. Yet, you can often plow more acres with a "Radius Curve" share than with a single resharpening of a conventional share.



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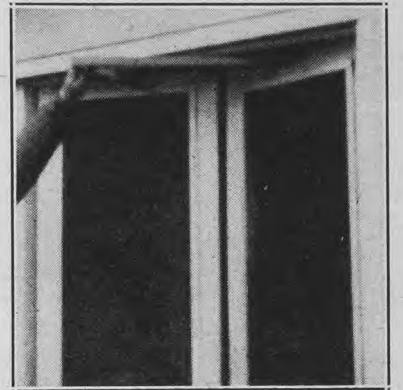
THE OLIVER CORPORATION

"FINEST IN FARM MACHINERY"

Double Door Stops

This technique holds the door open while you walk through with both hands full

DOORS to the basement, milk house and back kitchen are frequently the subject of many kicks and pushes; in time the paint and screening show the results of this abuse. In addition to the damage is the inconvenience of having to set down pails, boxes or armfuls of wood in order to manipulate the passage through one of these awkward doors. The stop shown here enables the loaded worker



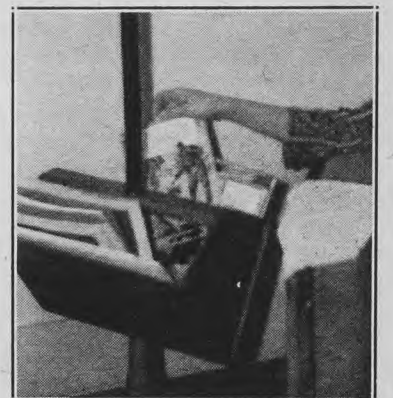
One push causes the doors to lock open.

to open the doors and lock them in that position with one simple movement. The hardwood arms are made the width of the doors and are hinged together at the center. The ends are then mounted at half-way marks on the door frames. Mountings can be made of old casters from which the rollers have been removed. The door stops are released by a simple push which places the central pivot point out of line with the mounted ends. —W.G.W.

Magazine Rack

Your lamp can hold your magazines

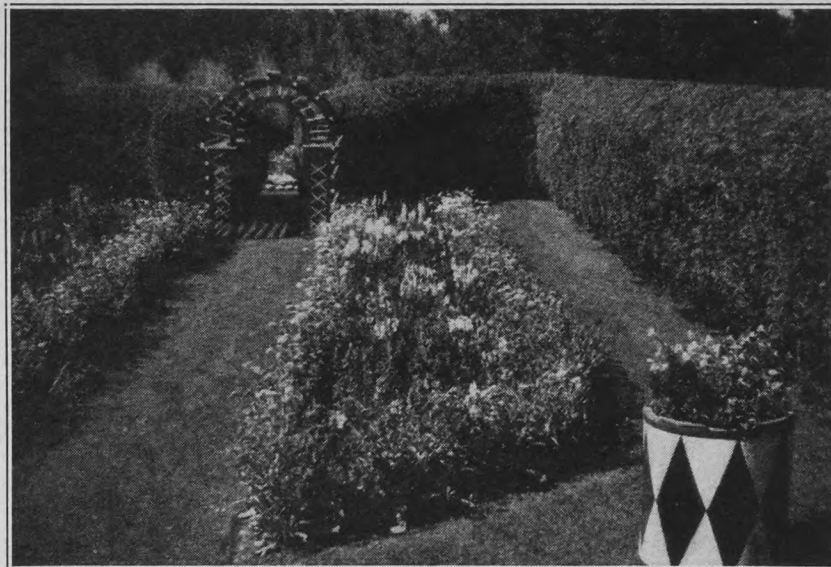
SOME rooms are so laid out that no arrangement of furniture seems to accommodate both floor lamp and magazine rack beside the easy chair. In such instances a combination unit provides an attractive and practical solution to the problem. The rack



Lamp and magazine rack in one unit.

must be built with a neat hole drilled in the top bar and a similar hole in the bottom. To assemble the unit, remove the head from the standard of the lamp. A hose clamp of appropriate size will serve to hold the rack from slipping down the standard and can be reset in any position to adjust the height. —W.G.W.

HORTICULTURE



Part of the lawn and flower garden of Cliff Robertson, Gilbert Plains, Man.

Shelterbelt Insects

SOME insects are likely to be important as enemies of shelterbelts in 1951, according to L. O. T. Peterson, Dominion Entomological Laboratory, Indian Head, Sask. These insects are canker worms on Manitoba maple, elm and ash, and also the spruce sawfly.

Canker worms are present on the trees from mid-May to late June. They are small caterpillars varying in color from light green to dark brown. They first eat small holes in the leaves and later devour the foliage so energetically that they may strip large sections of the shelterbelt.

The sawflies are common on spruce in shelterbelts and occur during late June and July. One species is a brownish larva with a reddish head and feeds almost entirely on the current year's growth. It is found chiefly in Alberta and Saskatchewan, while the other, showing a dull-green larva with a black head and preferring old foliage of spruce, occurs mainly in Manitoba and eastern Saskatchewan. Both canker worms and sawflies can be controlled in farm shelterbelts with DDT, says Mr. Peterson. Spray as soon as the insects are evident, with one pound of 50 per cent wettable DDT powder or one and two-thirds pints of 25 per cent DDT emulsion concentrate, in 40 gallons of water. Spraying should be thorough. If only small quantities are needed, use two level teaspoonfuls of the wettable powder, or one fluid ounce of the emulsion concentrate in one gallon of water. If more convenient, two pounds of lead arsenate in 30 gallons of water, or three level tablespoonfuls in one gallon of water may be used.

Sometimes an infestation is confined to small trees or to individual branches on larger trees. The DDT dust or rotenone dust, applied with a hand duster, is often adequate.

Plan Your Home Grounds

JUST too late for inclusion in our May issue, we received a five-page mimeographed publication to be distributed by the Extension Department of the University of Saskatchewan and prepared by D. R. Robinson, extension specialist. This material contains two plans for landscaping the home grounds, including the arrangement of trees, shrubs and flowers, and a suggested arrangement of a perennial

flower border, together with lists of plants to go with each plan.

Now is the time to begin thinking about planting the farmstead in 1952. Mr. Robinson says that the area to be planted should be prepared by plowing or spading the year previous. A copy of these suggestions is available for you if you live in Saskatchewan and will write to the Extension Department, University of Saskatchewan, Saskatoon.

Peace Garden

THE International Peace Garden, located on Manitoba Highway No. 10 at the international boundary, is under a steady program of development. In 1950 the U.S. Government voted \$100,000 for capital expenditure, which is handled through the office of Russel Reed, Superintendent of State Parks, North Dakota; and the Canadian Government voted \$15,000 expended through the Morden Experimental Station. These were in addition to money supplied in smaller amounts by the governments of North Dakota and Manitoba.

New drives were made, two nurseries opened, three new picnic areas begun and additional plantings were set last year. The waterworks system in the garden was extended and the woodlands along Lake Stormon, which is about three-quarters of a mile long, were cleaned up. This lake is skirted by a three-and-a-half-mile driveway which winds up and down hills and across valleys.

President of the Garden is D. G. MacKenzie, chief commissioner of the Board of Grain Commissioners for Canada, and the chairman of the Board of Governors is John A. Stormon, North Dakota. Honorary-treasurer is Col. A. J. Robbins, Winnipeg. One of the most ardent supporters of the Garden is W. R. Leslie, Superintendent of the Morden Experimental Station. It is a pleasure to record here that Mr. Leslie has been designated as Canada's representative to the meeting this year of the Royal Horticultural Society in Britain. He will deliver a paper before the Society, on "Horticultural Plants for Cold Climates," and will leave for England this month, accompanied by Mrs. Leslie.

The International Peace Garden, according to a recent statement by Mr. Leslie, needs funds. "It will prosper," he said, "in proportion to the contributions it is accorded by the

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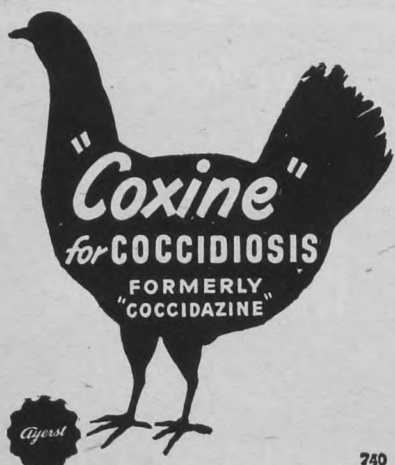
Black Leaf 40 is selective . . . does not destroy friendly insects that attack your insect enemies. It also spares bees—the pollenizers. Black Leaf 40 provides clean protection . . . never stains or burns and leaves no unsightly or objectionable residue on flowers, foliage or fruit. And it repels dogs . . . keeping them away from ornamental plants when used as directed.



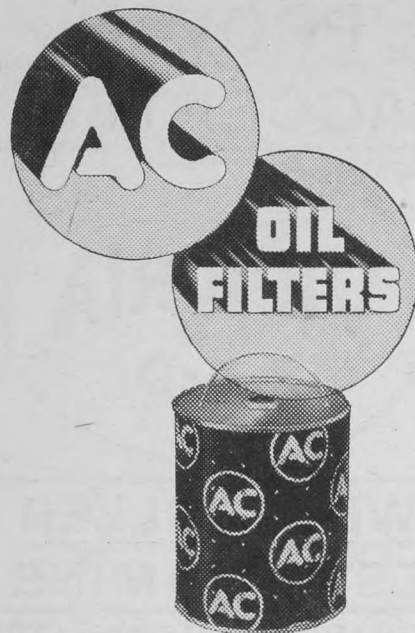
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general public. It belongs to all the citizens of North America. It is everybody's material evidence of personal appreciation of the wisdom and practicality of living at peace with, and in mutual esteem of, our neighbors."

Straw Stack Garden

I PUT old straw stack bottoms to use by planting potatoes in them. Where the straw is eight or nine inches thick I simply raise it and plant the potatoes on top of the ground and let the straw down again. The potatoes grow through the straw, require no weeding, produce well even in the driest years, mature early, and are very good in flavor. I find the same method also works well with water-melons, squash and pumpkins.—I.W.D.

How to Kill a Tree

SOMETIMES a tree is objectionable because it is in the wrong place, or for some reason must be destroyed without damaging the surrounding soil, or leaving it so that it will throw up sprouts from the roots.

Killing such a tree can be done quite satisfactorily, according to some authorities, by cutting away the bark until the whitish inner layer is exposed all around the trunk. Wrap this exposed layer with a cloth thoroughly wetted with one of the liquid types of 2,4-D weed killer that has been mixed with three times its volume of kerosene. If properly done it is reported that this chemical should kill the tree right to its root tips and prevent it from sprouting again.

Pamphlet on Raspberries

IF you live in Manitoba and want some information on raspberry growing, write to the University of Manitoba, or to the Manitoba Department of Agriculture at Winnipeg, or visit your agricultural representative's office and secure a copy of a recent pamphlet entitled "Raspberry Growing in Manitoba," prepared by Professor E. T. Andersen, associate professor of horticulture, University of Manitoba.

How Is Your Garden?

HOW is the vegetable garden coming along this year? Was there plenty of moisture to start it off? Do the young plants look green and vigorous? What is the soil itself like? Does it hoe easily and is it mellow and pliable? If you are in an area where the succulent weeds such as mustard, lamb's quarters, pigweed and sow thistle are common, do they look vigorous and healthy? If so, your garden soil is probably in good heart.

If the soil is hard and lumpy, so that the water runs off during a rain and it is hard to hoe or cultivate, it clearly needs more organic material. When this is finally decomposed into humus it will give the soil what is called crumb structure, and make it more open and porous so that it will hold water and cultivate more readily.

Keeping soil in good heart is a sort of endless cycle. In the drier parts of the prairies, organic material does not decompose readily, because moisture is a serious limiting factor. Where rainfall is more plentiful, as in parts of British Columbia, or the black soil zone of the prairie provinces, the decay of organic matter brought about by the organisms within the soil is

fairly rapid. Plenty of organic matter means more nitrogen for the growing plants, after the bacteria and other soil organisms have taken what they need. Cultivation itself, while important for the control of weeds and the aeration of the soil, nevertheless brings about more rapid decay of organic material because it furthers the activity of the soil organisms. The more favorable conditions are for the decay of organic matter, the more necessary it is to keep the soil well supplied with it.

Now is a good time to examine the garden soil critically and perhaps decide what to do next fall or next spring, to get it into better shape for growing good, green, healthful garden crops. If manure has not been applied for sometime, or is not readily available, perhaps there is some old slough hay or old vegetable material of some kind that could be spread over the garden this fall and plowed in roughly. It will decay more rapidly and at the time help the soil to absorb more water, if it is not covered too perfectly. If the soil is not very fertile and much organic matter is plowed under, some nitrogen fertilizer might be needed to give the vegetables a start next spring, until nitrates are available from the plowed-under material.

Know Your Shrubs

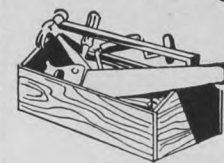
by DR. R. J. HILTON,
University of Alberta

Highbush Cranberry

IN a prairie section where even a densely wooded river bank will contain only 25 or 30 species of native woody species, it is pleasant to record that several of those species may be "tamed" to become attractive and useful members of the lawn and garden family. One of these is *Viburnum trilobum*, commonly known as the Highbush Cranberry, American Cranberrybush and Peminaberry. This attractive large shrub is botanically almost identical with the European Highbush Cranberry, from which the beautiful Snowball-bush was developed. The latter shrub is not dependably hardy on the prairies, but its native Canadian cousin is very hardy, will withstand some shading, grows to six or eight feet in good soil, and has attractive three-lobed foliage and large clusters of showy white flowers. The heavy clusters of scarlet berries have large, flat seeds, and are quite astringent. They may be left on the bushes to make winter show, or may be used for an excellent tangy "cranberry" jelly, being very similar in flavor to that made from true cranberries. For jelly, the fruit should be picked when not overripe, otherwise the product may be strong-flavored.

The shrub is fairly upright, but the large handsome leaves (which color bronze-red in autumn), when borne on low outside shoots, give the whole plant a dense appearance, making it useful for natural-growth hedges, for large lawn or garden specimens, for background foundation placement, and excellent as well for screening bare and not particularly attractive farmstead buildings, such as hen houses and machinery sheds. Where several plants of this species are to be planted together, they should be planted at least five feet apart.

Building Ideas FOR THE Farm



**PRACTICAL HINTS
ON MATERIALS AND METHODS**

You probably read about the spectacular fire at Rimouski and the equally disastrous blaze at Cabano. These fires which did a total damage of over \$30,000,000, were caused by everyday occurrences. The Rimouski fire resulted from a power line pole being blown over in a heavy wind storm and the Cabano blaze was attributed to a burning chip from a chimney. Large fires such as these make the national headlines, but Canada's greatest fire losses come from the thousands of smaller fires that break out every day. Fire prevention on the farm is a day-in-day-out "must." One of the surest ways to guard against fire on the farm is to build with fireproof asbestos building materials.

ASBESTOS-AND-CEMENT BUILDING MATERIALS CAN'T BURN OR ROT

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BUILDING MATERIALS



FARM YOUNG PEOPLE

The Hub Clubs

THE boys' and girls' farm clubs in the Saskatoon district have been banded together into one large family called the Hub Club. "It is an organization of junior farm clubs in the 'Hub City' district, but they have no executive and no collective activities," says Jack Lee, of Saskatoon, whose idea the Hub Club is. "It is just a means of inspiring the club members with a unity of purpose."

The first club to be organized in the Saskatoon district was the Dairy Calf Club. It was originally under the guidance and supervision of the Dairy Branch, Saskatchewan Department of Agriculture, but was later taken over by the Extension Service, University of Saskatchewan. It is sponsored by the Saskatoon Herd Improvement Association. Jack Lee is the voluntary leader.

The poultry club is sponsored by the agricultural committee of the Saskatoon Kiwanis Club. Jack Longstaff is the voluntary leader, and with his help and that of the members and the Kiwanis club, a very good poultry club has grown up.

The grain club and the home-makers' clubs are the last two to be organized, and they are still in the formative stages. The prospects of finally having good clubs here is also good, as they have the prime requisites—an enthusiastic membership, interested parents, capable voluntary leadership and active, interested sponsoring organizations.

The membership of the Hub Club and the people authorized to wear its crest are the members of these clubs.

International Trips

THE Junior Farmer Association of Ontario is to be represented at two international livestock judging competitions to be held in Great Britain this summer. The representatives consist of four young men drawn from rural Ontario. They will be coached and accompanied on the tour by T. R. Hilliard, Assistant Director of Extension for the Ontario Department of Agriculture.

The team, which is the second to go from Ontario, will sail for Britain on June 1, and return to Canada on July 17. They will represent the Ontario Junior Farmers in the International Beef Judging Contest to be held in Great Britain on June 20. The contest forms part of the Royal Highland Show to be held at Aberdeen, Scotland. On July 3, they will represent their organization in the International Dairy Judging Contest held in conjunction with the Royal Show at Cambridge, England.

During the remainder of their visit the group will tour the British Isles. They will be living on farms, meeting members of the Young Farmers' Clubs and getting a first hand picture of British agriculture and agricultural activities.

There will also be a movement of young people in the opposite direction. Four young people from Scotland, two boys and two girls, will be visiting in Ontario from April 22 to July 18 as representatives of the Scot-



The crest of the "Hub Clubs" in Saskatoon.

tish Association of Young Farmers' Clubs. They will spend some time living on Ontario farms, will be guests at the annual meeting of the Junior Farmers' Association at the Ontario Agricultural College, visit points of historic interest in the province, and visit boys' and girls' clubs and junior farmers' associations throughout the province.

A further group of six farm young people from England will arrive in Ontario on August 10, and stay for a period of one month. They will follow a similar itinerary to that of the earlier group, though they will also visit the Canadian National Exhibition and the provincial Junior Farmers' Camp at Lake Couchiching.

Electrification Project

IT was recently announced by Miss Echo Lidster, Supervisor, Boys' and Girls' Club Work for British Columbia, that a rural electrification project has been added to the B.C. club program. This follows a farm management project, which was also recently added.

The objective of the rural electrification project is to demonstrate the maximum and safe use of hydro on the farm. Twelve boys have enrolled and are engaged in their first assignment of making tool boxes. Study material for the program is under the direction of Ralph Gram, agricultural adviser to B.C. Electric.

The farm management project includes, among other things, the preparation and maintenance of inventories of all livestock, equipment and supplies; farm layout and land use; layout of the farmstead; layout of principal buildings; farm work simplification; cultural practices, and the feeding and management of livestock on the farm.

Manitoba Name Change

PROVISIONAL directors of the Boys' and Girls' Clubs Association in Manitoba, recently met in Brandon. E. Pritchard was elected president, T. A. Moffatt, vice-president, and W. S. Frazer, secretary-treasurer.

One of the first acts of the Association was to change its name to The Manitoba 4-H Club Association. They also decided to attempt to raise \$1,000 from membership fees, and send a leader to the National Club Week at the time of the Royal Winter Fair, and to send a leader and two club members to the 4-H Club conference in Chicago this fall.



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4 **BLACK DIAMOND HORSE RASP.** For dressing hoofs prior to shoeing. Tanged for ease in handling. Lengths, from 12" to 16".

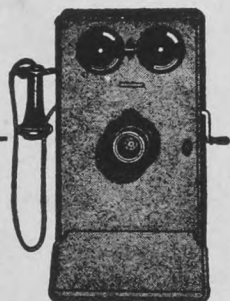
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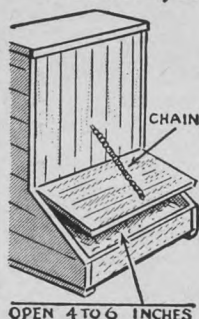
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Workshop in June

Things you can make yourself to save time and money

Feeder for Small Pigs



This idea occurred to me one day when I saw small pigs trying to eat from the self-feeder. I attached a light chain to one of the feeder doors as shown and then to the top of the feeder and adjusted it so that the door would be open from four to six inches. Pigs will soon learn to open it by themselves. It doesn't interfere with the sow because she will open it anyway.—I.W.D.

Chisel Shock Absorber

You can avoid much of the shock from the use of star or cold chisels by using an old bicycle handle grip. Cut the round knob off the end, slip it over the handle of the chisel, leaving about a half-inch of chisel protruding above the grip.—R.K.W.

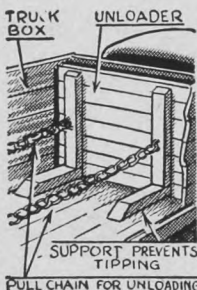


Protect Garage Floor

I protect my garage floor from becoming soaked with oil and grease by using large pieces of insulation or wall-board, sheathing paper, roofing or large sheets of corrugated pasteboard. Sometimes large pieces of these materials are left over after construction jobs and can be used to keep the garage floor clean under the parts of the car which drip oil. When they become oil soaked and discarded, they make good fuel for the fireplace, or outdoor stove.—I.W.D.

Unloading Device

When hauling to a pile or filling a washout this is a simple way to unload dirt, trash or manure from a pick-up truck. The one I made is the width of the truck box and before loading stands upright at the front of the box with the chain extended to the rear. To unload, hook the chain to a stake or tractor, and drive the truck ahead. The material is automatically unloaded. Short pieces of two-by-four lengthwise of the bed, and used as sliding feet for the unloader, would help prevent it from tipping backward or forward during unloading.—I.W.D.



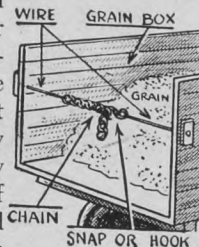
Screwdriver Night Gadget



It is irritating to use a screwdriver at night when one cannot see well. The same is true when using an oil can. I fastened a very small sized flashlight to the shank of a screwdriver and the spout of an oil can. Now it is possible to see the screw slot, or the oil hole without difficulty.—W.F.S.

To Hold Grain Pressure

Here is a sketch of a handy way to hold a bin or a wagon or truck box, against grain pressure. I use a piece of twisted wire, or light chain, fastened through each wall of the bin or wagon box and having a short piece of heavier chain at the middle. By fastening a heavy wire to the end of the other wire, and having a large snap or a small log chain hook on the end, this can be snapped into the proper chain link to hold the walls without spreading.—I.W.D.



Jacking-up Tip

When renewing a post that carries much weight under a building, it is better to insert a wedge between the top of the post and the timber above. A wedge can be driven in later, to allow for shrinkage of the post, or possible settling.—E.G.H.

Water Level in Gauge Glass

If you have difficulty in locating the water level in the gauge glass, a flashlight located below and to one side of the gauge glass will solve the difficulty. First direct the light against the glass from about this position, and then move it around until you get the best result. In the right position the light from the flash will make the water line stand out distinctly, as a band of light. After locating the best position the flashlight may be fastened permanently, and one will only need to turn on the light as desired.—W.F.S.



Cleaning Old Files

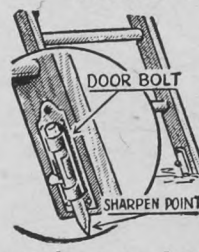
Sometimes old files are blocked with dirt or iron particles so that they are more or less useless. An easy way to clean them is to soak them in gasoline for a time, and then rub across with a wire brush.—A.P.

Rebending Gas Lines

Sometimes it is desirable to re-bend a gas line, but it is often difficult to do so without crimping the line. Rebending will be successful, without crimping, if an old speedometer cable is first inserted in the gas line pipe as indicated.—J.C.



Ladder Doesn't Slip



To keep an extension ladder from slipping on the ground, fasten a bolt on the inside of the risers at the bottom of the ladder. If necessary, the end of the bolt can be ground to a point, so that it will dig into sod, gravel, or hard ground. This little remedy is inexpensive, easy to install and may prevent serious accidents.—A.P.

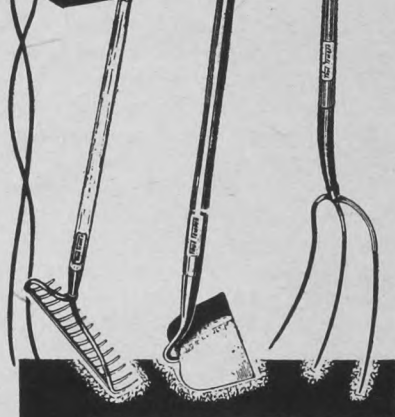


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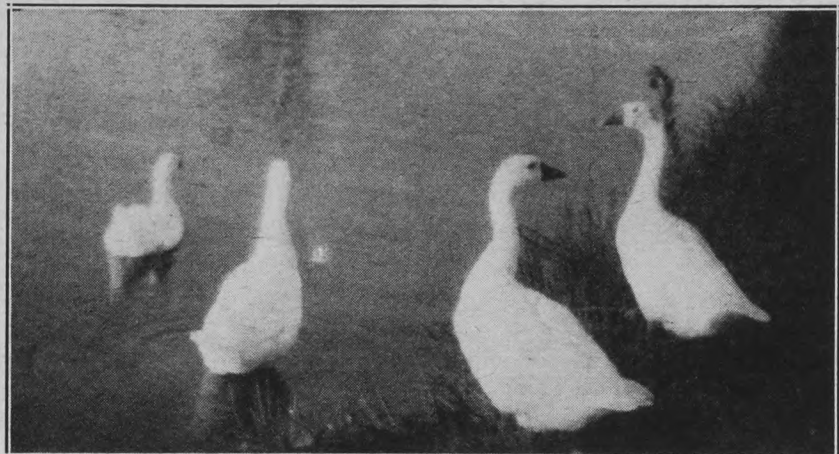


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POULTRY



Either ducks or geese make a valuable addition to the poultry on a farm, where conditions make their rearing practicable.

Control of Pullorum

PULLORUM testing in Saskatchewan is responsible for a significant decline in the incidence of this disease. Only .18 per cent of Saskatchewan approved flocks reacted to the test during the 1950-51 season. This compares with 21 per cent pullorum reactors in 1929-30—the first year of the flock approval service. There has been a steady decline since the beginning of the service, until in 1946-47, for the first time, the number went below one per cent to .63 per cent.

During the 1950-51 season 958 flocks in Saskatchewan were blood tested for pullorum by field men employed by the poultry branch for flock approval work, according to F. E. Payne, Poultry Commissioner, Saskatchewan Department of Agriculture. Of 196,536 birds tested, only 355 birds in 61 flocks reacted to the first test. Only eight flocks had reactors in the second test, and this number declined further to four in the third test. No flocks having reactors at the third retest are approved under the flock approval policy.

Feeding Growing Turkeys

MANY turkey raisers give special attention to the diet of turkey poults, but consider the matter to be of less importance by the time the birds reach eight weeks of age or over. An inadequate diet during the growing season can be responsible for poorly developed bodies lacking the proper reserves of vitamins, advises the Dominion Experimental Station, Swift Current, Saskatchewan. Ailments traceable to inadequate diet are crooked keel bones, poor feathering, weak hocks, colds, roup or sinusitis.

The birds will make up many of the deficiencies themselves when there are abundant supplies of succulent, green feed. In drier areas such feed is frequently not available.

Turkeys from eight to twelve weeks of age require a protein level of 22 per cent in their diet. This can be reduced gradually, and by the time the birds are 24 weeks of age, 14 per cent is sufficient. A diet of whole and ground grains contains only 12 per cent protein.

Vitamins A and B are required for proper growth and for resistance against respiratory infections. Vitamin A deficiency, in particular, predisposes birds to outbreaks of colds and roup in the fall of the year. Both of these vitamins are found in green

feed, and vitamin A is found abundantly in fish oil. If the summer is dry and green feed scarce, it is recommended that between one-quarter and one-half of one per cent of fish oil be added to the diet during the fall months.

A turkey growing mash, made up from a commercial turkey growing concentrate and ground grains in the proper proportions, will assist in providing the desirable protein and mineral level. At 16 weeks of age additional calcium should be provided by the hopper feeding of oyster shell.

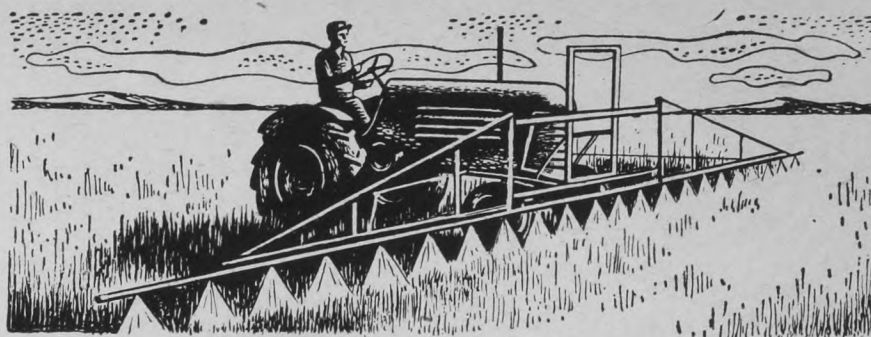
Well-Bred Chicks

MANY farm products are sold on the basis of eye appeal. This is not true of chicks. It is the breeding behind the birds that counts, and most poultrymen will continue to buy their chicks from a proven source if they can do so. Progressive producers discover that certain poultry breeders' chicks are money makers. Such chicks usually have years of breeding and selection for egg weight, growth, meat production, livability, freedom from disease, and other desirable characteristics. These are typically chicks from R.O.P. breeders' flocks, which are, in the opinion of A. D. Davey, of the Poultry Production Service at Ottawa, the backbone of Canada's National Poultry Breeding Program.

The original Record of Performance policy in Canada dates back to 1919. Today it comes under the authority of the Livestock and Livestock Products Act, administered by the Canada Department of Agriculture. In addition to the R.O.P. work which produces the foundation stock, the National Poultry Breeding Program includes the Flock Approval Policy which has to do with the multiplication of the stock in commercial quantities, and the Hatchery Approval Policy which is the medium for the distribution of this large number of chicks and poults.

Mixed or Sexed Chicks?

A GOOD case can be made for the buying of mixed chicks for the average farm flock, according to results of work conducted by J. L. Tessier, Dominion Experimental Station, Kapuskasing, Ontario. He conducted an experiment to determine the cost of rearing chicks using one group of mixed and one group of sexed, Barred Rock chicks. He found that the profits from the sale of the cockerels in the mixed group covered the rearing costs of the pullets which



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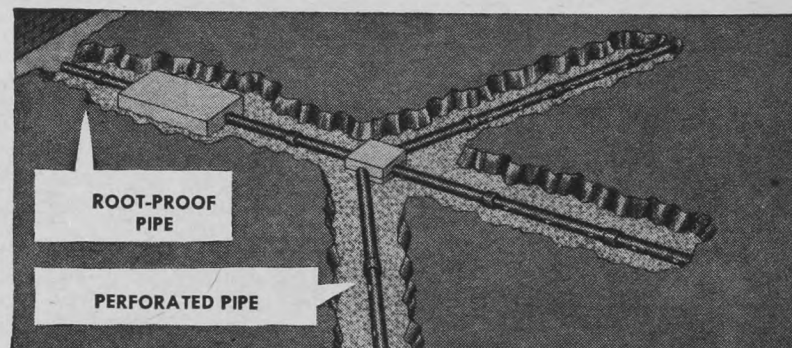


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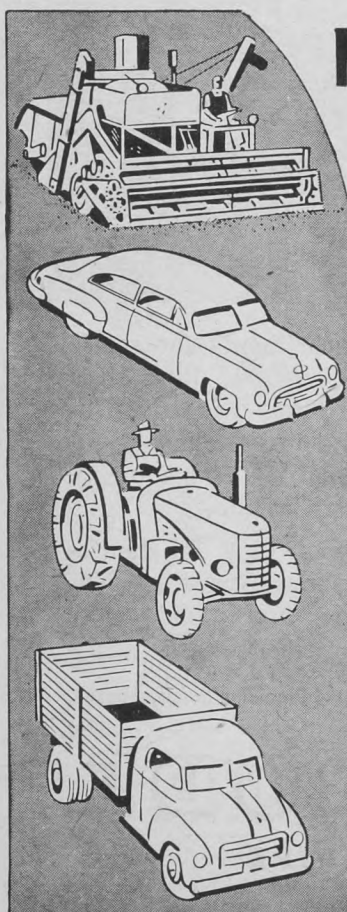
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were kept as layers, while the sexed chicks, in the fall, were found to have cost \$1.18 per pullet.

A farmer who keeps a flock of 100 to 200 hens as a sideline and who can rely on family help for killing cockerels in the fall, would seem well advised to raise mixed chickens. On the other hand the market situation cannot be ignored. If a producer is remote from markets, costs will go up, and a sexed flock might be more profitable.

The specialized poultryman may find no advantage in the raising of mixed chicks, as he usually has limited ground, equipment and buildings. He might not find it profitable to use up scarce facilities for the raising of cockerels.

Poultry Cannibalism

CANNIBALISM in a flock may take the form of feather pulling or toe picking, either of which will, if unchecked, result in the death of the birds attacked. The primary cause is, according to the poultry specialists at the Dominion Experiment Station, Scott, Sask., too much idleness on the part of the birds, coupled with overcrowded housing. A diversion, such as greenfeed placed in racks, serves to correct the former, and good housing practices correct the latter.

A sudden, severe outbreak of cannibalism may occur on range where the increased size of chicks causes the house to become overcrowded. This may be aggravated if the water supply is not plentiful, or the colony house is not opened up early in the morning. Overcrowding, overheating, thirst and hunger result in picking.

Even baby chicks in a crowded and hot brooder house, with no opportunity to escape from the heat or get adequate ventilation, will start toe picking. Too much light in an overcrowded house can also be responsible. Windows may be darkened so that blood vessels in the toes do not show up against the litter. Painting with a washable paint is a satisfactory way of darkening windows.

The chances of an outbreak are reduced if good brooding conditions prevail. There should be sufficient floor space and a well-balanced ration. If an outbreak does occur the picked birds should be removed immediately and the wounds treated with pine tar or a recommended trade product. The tar is distasteful, and may help to check picking in adult birds at the very first.

Newcastle Disease Precautions

THE report that Newcastle Disease has again broken out in some of the larger poultry breeding flocks in British Columbia is causing some concern in the other western provinces, and especially in Alberta.

The Alberta Department of Agriculture recommends that breeders should be careful to buy chicks only from sources that are known to be free from this disease. There is no immediate cause for poultry producers to become seriously alarmed, but their co-operation and assistance is needed to prevent the disease from spreading. Any unusual condition noticed in flocks should be reported at once to some Provincial or Dominion official. Such conditions may be a sudden drop in egg production, coughing, gasping, or any symptoms similar to those of colds.

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Farm Costs

Continued from page 8

has been this shortage of capital which is available to be worked back into the farm business. There has been, however, a steady shift toward more capital and less labor in the agricultural economy. The trend was accelerated in the World War I period, and very greatly accelerated during World War II and the years following. During the same period the average farm size increased significantly. Probably this gradual trend toward an economic size of farm unit and adequate capital equipment has been the most effective force in reducing the cost of production of farm commodities.

STUDIES by the Economics Division, Marketing Service, Canada Department of Agriculture, have revealed the extent of this trend toward larger units, less workers and more capital equipment on prairie farms. Reports of machinery were taken on a sample of Saskatchewan farms in the 1939-41 period and compared with similar reports taken in the period 1926-32. In spite of the fact that the interval included years of drought and depression there was a very significant increase in investment in machinery. In the later period an average of 75 tractors per 100 farms was found, compared with 48 in the earlier period. Combines increased from six to 28, trucks increased from nine to 31, automobiles remained about the same (74 in the later period), while grain separators declined from 34 to 23.

This general trend has continued. Later work done by the Economics Division and based on the 1946 census revealed that in the 1941-46 period farmers in the area bounded by the Lakehead, the Rocky Mountains, and north to include the Peace River country purchased well over \$200 million worth of machinery. The number of tractors on farms increased by no less than 36 per cent. In 1946 the 269,646 farmers in the prairie provinces owned 153,000 tractors, 55,000 trucks and 37,800 combines. These figures unquestionably will be higher in this year's census.

Farm size also increased during this period. The number of farms declined by nine per cent, from 296,469 to 269,646. The average farm size was nearly 436 acres in 1946, compared with 405 acres in 1941. Thirty per cent of all prairie farms were between 300 and 479 acres in size in 1941. No less than 16,000 farms were 100 acres or smaller in size, but 19,000 fell into a size group between 960 and 1,279 acres. This last group showed the greatest percentage increase in the period under study.

It is not the purpose in this article to discuss the effect of the trend toward more machinery and larger farms on social and educational aspects of farm life. The impact is none the less real because it is ignored here.

The increase in machinery permits, but does not guarantee, a reduction in production costs. The extreme importance of having sufficient work for a machine to allow a reasonably low overhead cost has been amply demonstrated. A study conducted in Ontario showed the average overhead charge per day for corn binders used 2.6 days in the year was \$7.84; when the

machines were used 12.1 days the daily overhead cost dropped to \$2.01.

This point was forcibly demonstrated in a similar study on tractor costs. Overhead and operating expenses, which include interest, depreciation, repairs, fuel and oil, were calculated on tractors used for varying numbers of days per year. Tractors used under 101 days per year cost \$4.78 per day of use; those used 101 to 171 days cost \$2.85, and those used 171 days and over per year cost \$2.62 per day of operation. Those used the greater amount cost much less per day, in spite of the larger annual cost of fuel, oil and repairs associated with the additional days of work.

Production costs are not reduced as much as possible if machinery which is bought is not fully employed. Before buying a farmer should consider the cost of hiring the work done, rather than buying his own machine. This is often less costly than buying a machine on small farms, or buying a second tractor or combine on the larger units. Joint ownership also provides a means of reducing costs. This can take the form of an informal arrangement with one or more neighbors, or a group of neighbors can form a co-operative and pool their machinery. If custom work can be used to employ the machine, and so defray some of the cost, the purchase may be justified even if the owner's farm cannot support the machine alone.

Another field that will repay study is the economical use of labor. Average summer wages on the prairie provinces, with board provided, were approximately \$90 a month in 1948, a rise of nearly \$15 a month from 1945. The figure is higher today.

With labor scarce and costly, its efficient and economical use becomes increasingly important. The objective in industry is to keep workers constantly employed on productive work. If maximum returns are to be gained the same objective should guide the use of labor on the farm.

ONE means of accomplishing this object is to run enterprises on the farm that supplement one another. An example is to have grain and cattle enterprises, so that when the work in the fields is completed the farm labor can be employed on the cattle. When summerfallowing is finished, haying can be begun. When harvest is completed cattle can be run into the feedlot and the worker on the farm kept in employment. In the winter months when the fields cannot be touched, store cattle will demand the attention of the farm labor. Careful choice of enterprises serves to level the labor load throughout the year. This may not be attractive to the farmer who wishes to sit by the stove or move to town in the winter, but, if carefully planned, it will serve to increase net returns.

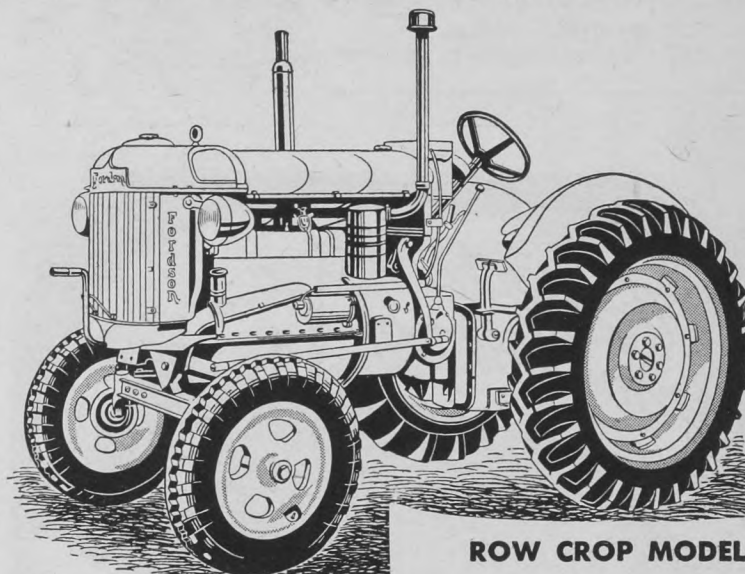
In farming it is essential that the secondary enterprises supplement the main enterprise rather than compete with it for any of the three factors—land, labor or capital. A herd of milk cows freshened in the spring can seriously compete for labor during seeding. A man who critically needs a combine should not use his available capital for the purchase of purebred cattle, and do without a machine that would increase his net returns more than would the additional livestock.

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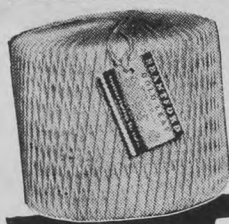
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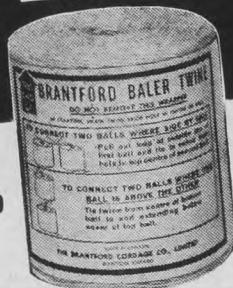
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Land that will yield an average of \$20 an acre in wheat should not be seeded to coarse grains to be fed to cattle where it will average \$15, or to hay or grass where it will average \$10. In other words a farmer should have the organization of enterprises that will give him a maximum return on all. This means, as indicated at the beginning of this article, that he must at all times be aware of his dollars and cents position so that he will know what net returns are being realized from each and every project on the farm. The conclusion is inescapable that the farmer who is to be really well organized economically must keep records.

There is no best size for a farm unit. It will vary with type of farming, soil productivity, intensity of the farming operations and the ability of the farm manager. In general the trend toward larger units is economically sound. The important thing is to get an adequate unit for the type of production that is being carried on, get the right amount of the right size of machinery and employ it fully, and organize the available labor force in

such a way that each man produces a maximum amount over the year.

All successful business is essentially a combination of relatively scarce resources, to produce a product which can be sold at more than the cost of production. Farming is no exception. All of the resources necessary for farm production can be classified as land, labor and capital. The successful farmer combines these resources in varying proportions, using the combination which will produce the most satisfactory returns. He may buy an additional quarter-section to use his machinery to better advantage or sell a quarter-section to farm the remainder more intensively. He may buy more machinery to save labor costs. Mistakes are costly when the use of resources is not kept in balance, as when neither land nor machinery are sufficient to economically use the labor available, or when more land is purchased and operated with inadequate equipment, or more machinery added which cannot be used to advantage.

Many farmers plan the practical operation of their farms with care, but neglect the farm as a business.

Bird-Friend of Farmers

Franklin's gulls are better friends than most farmers realize

by KERRY WOOD

EVERY grain farmer in the West has a friendly feeling for that small, black-headed gull with the pink-washed white breast. Those who have watched the swirling flocks of Franklin's gulls following the spring plows have nothing but praise for the good deeds of these birds. The freshly turned furrows expose cutworms, wire-worms, grubs and egg-sacs of injurious insects which the gulls gratefully devour. Later, when the young grain is green, the flocks invade the fields once again to busy themselves with grasshopper control, and they continue to prey on grasshopper numbers all summer long.

During years when meadow mice are abundant, Franklin's gulls eat large numbers of the destructive rodents. Even during the harvest season itself, flocks of Franklin's gulls still patrol the grain fields to feed on low flying insects of various kinds, thus performing a last beneficial service for farmers before they migrate southward to the lower Californian coasts where they spend the winter.

The farmer's friend has been a popular bird in western Canada and the adjacent grain-growing states for many years—indeed, there is a gull statue at Salt Lake City, erected by grateful farmers toward the end of the last century to commemorate the occasion when flocks of these birds saved the harvests from a grasshopper plague. But despite the general knowledge that this bird is one of the best allies the western farmer has to help him fight the insect pests, gulls have not always enjoyed the protection they have so richly earned.

There have been occasions when so-called sportsmen have used these wonderful birds as living "clay-pigeons" on which to practice shotgun skill. The writer remembers a day when he found over 50 Franklin's gulls dead on a central Alberta lakeshore. A nearby boat-vendor volunteered the information that four shotgun hunters had stood on that shore-line the day

before and fired off more than 200 shells at the passing flights of gulls, killing over 50 birds and wounding many more. Such wanton practices are fortunately rare.

BUT farmers themselves have been known to unwittingly destroy these beneficial birds. Franklin's gulls nest on the marshy flats of sloughs and lakes. They collect dry reeds and build up bulky nest platforms or rafts that rise above the water level on the reed-strewn marshes, the female gull depositing two or three eggs on the dry top of the nest mound. Both birds share the incubation duties of setting on the eggs, and both parents help look after the young fledglings.

All too frequently, these gull-nesting marshes have been drained by farmers who want to reclaim more land for cultivation. The draining almost always kills the current year's hatch of young gulls: drying the marsh also permits land predators to invade the gull community to kill the helpless young ones stranded there. But the harm done is much more serious than the destruction of one season's fledgling crop: the drainage of a gull-nesting slough hurts the whole farming district for a 20-mile radius or more, as it forces the beneficial gulls to find another communal nesting site farther away. They may not find such a marsh within 30 miles of the drained area, which means that their helpful insect-control services are lost to the farming community around the ruined marsh. The final result of such drainage may therefore mean reduced grain harvests in such areas, because gulls are no longer present in sufficient numbers to control insect pests.

Franklin's gulls are fascinating birds to study. They wing out from their nesting marshes at the first light of dawn to visit the farm fields, and all day long fly between farms and nests on tireless wings. They don't carry insects in their beaks back to their young: these gulls swallow whatever

fare they find and then, later, feed their young by the process of regurgitation. Back and forth they fly, hour after hour during the days of June, July and early August, by which time the young birds start their own flying careers.

HOW far do the adult gulls fly in quest of food? This is an aspect of gull-study that has always intrigued the writer. Of course we know that the birds often alight on fields to walk around, seeking insects and mice. And we've seen flocks resting on river bars and lake shores. But a great deal of their time is spent on the wing, every day. If you've ever been in a car travelling parallel with a flight of such gulls, notice the speedometer: 40 to 45 miles per hour seems to be the average flying speed of Franklin's gulls.

Now, during June and July, when gulls are so busy foraging for food to feed their youngsters waiting at the colony nesting sites, we average 18 hours of sunshine every day. Probably the gulls are active for about 15 hours of that total, but we must count off all the time spent on the ground, on river bars, and out on lake waters. However, it is conservative to estimate that they spend ten hours daily at flying. And if we reduce the known flight speed to a slow 35 miles per hour to allow for all errors, then multiply that speed by the number of flying hours, we have an estimated total of 350 miles that such gulls fly daily, throughout the summer season.

Continue this game of estimated mathematics, and we'll assume that each gull requires one insect per mile—as fuel consumption, so to speak! That means that each gull devours about 350 insects every day! The insects vary in size from plump grasshoppers and fat cutworms down to the slim lake-flies.

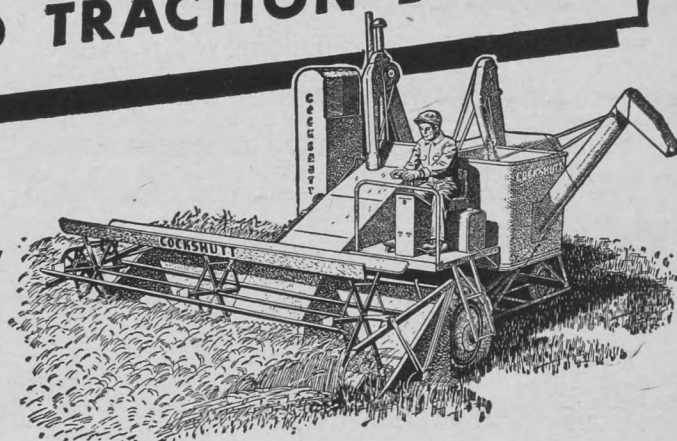
We can put it another way. Each gull eats more than three times its own body weight in insects every day. Many birds exceed this ratio, their vigorous flying activities requiring constant stoking with energy-building food. Well, we know that an adult Franklin's gull weighs around eight ounces in total body weight. Allowing that each bird devours three times its eight-ounce body weight per day, that's a pound and one-half of harmful insects and mice destroyed daily by every single Franklin's gull in the western grain-growing belt. Carry these estimate-figures a little farther, and we make the amazing discovery that one million gulls devour 750 tons of harmful insect pests, every single day! And we've got literally millions of Franklin's gulls living in the West for about 180 days every summer, from April through to September. One hundred and eighty days, multiplied by 750 tons of insects destroyed daily—the figures become enormous!

These startling food totals, which are conservative estimates only, help to explain why western farmers feel friendly toward this wonderful bird-ally. But remember, that's only a small part of the total picture. Gulls are only one bird-group in the large avian host of over 200 varieties of birds that live in or pass through almost every western farm community at some season of the year, and with few exceptions, helps at the continual battle of controlling the insects attacking the farmers' crops.

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Machinery Co-ops

Continued from page 9

first members. Three brothers formed the Red Deer farm machinery co-operative near Chelan in December. They set the membership fee at \$100. Two more have been incorporated to date in 1951.

MACHINERY co-operatives offer many advantages to farmers operating individually, which are seldom possible among those who are on their own. Almost any time except during the very busiest seasons a member may take a few days off for a fishing trip or to visit the city. If one of them is sick, even in the midst of seed- or harvesting, there are still enough men to keep the outfits moving.

The Mt. Hope machinery co-op had a problem which under ordinary circumstances would have been even more serious. One of the members died. His widow remained a member of the co-op for three years until she sold her farm last fall. Her field work was done just as it would have been if her husband had not died. An outline of the operation of this co-operative will show how she was able to carry on without her husband.

There are now ten members with a total cultivated acreage of about 3,400 acres. When they organized in 1945 each member bought shares at the rate of \$2.00 for each cultivated acre. The co-operatively-used machines bought with this money had to be complemented by the members' privately owned equipment that first year. As they gradually increased their investment more machinery was accumulated until, beginning in 1947, the co-op did all the field work for its members.

Cost of the machinery now being used by the Mt. Hope co-op was \$29,330.16. A small amount of this was secondhand, bought from members at the beginning. Since depreciation has been charged each year the actual amount of money now invested in machinery is \$21,141.52. This works out to an investment of \$6.22 per acre or \$2,114.15 per member. It cannot be compared directly with the figures given for the Matador co-operative farm, because it includes only tractors and field machinery, and only a small amount of tools and miscellaneous equipment.

This co-operative is organized like any well-run business. The members hold several meetings during the year

to keep close contact with all activities. A six-member board of directors deals with problems which arise between meetings. A secretary-treasurer keeps the records and handles the money. The books are audited by a chartered accountant each year. A manager is responsible for seeing that the equipment is kept in good repair and for hiring any extra help needed to get the work done on time.

Shortly after organization the members drew up a chart showing the route to be followed in seeding and harvesting the members' crops. During both seeding and harvest the outfits visit each farm several times. The route starts at a different farm each spring. By using large outfits 24 hours a day, crops are put in and taken off before most individual farmers in the district finish.

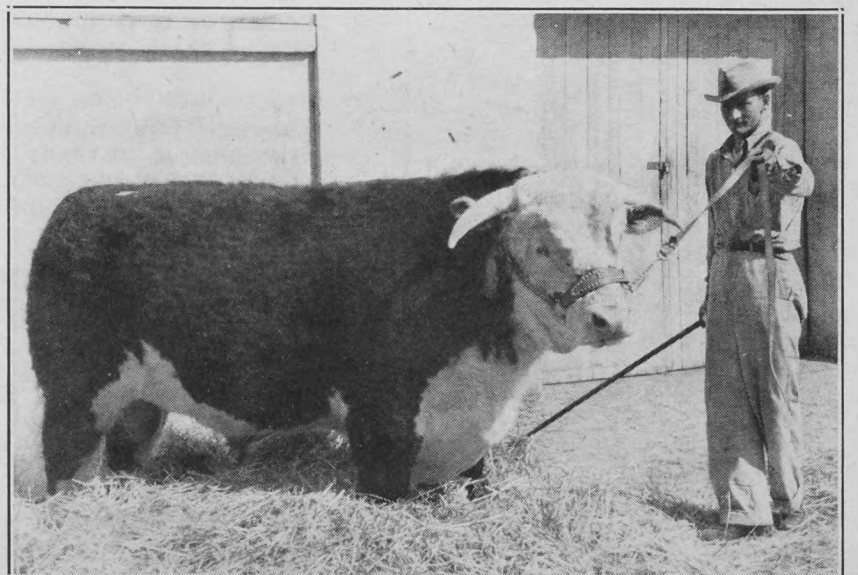
Operators of the machinery, who are paid the going wages for their work, in most cases are co-op members. During some of the busiest seasons some outside help is hired.

The members pay by the hour for the use of the equipment. Rates paid are intended to cover wages, fuel and repairs as well as depreciation and interest on the investment. At the end of the year all expenses are totalled and reserves set aside. Any surplus is returned to the members in proportion to the use each made of the machinery during the year. The member who has the most field work done will receive the largest dividend.

Since no member ever has to work more than one shift each day, the field work does not interfere much with livestock chores. Largely for this reason livestock numbers have increased a good deal since the co-op was formed.

Should a member withdraw from a machinery co-op his equity is repaid. Time of repayment is subject to negotiation with the board of directors of the co-operative, if not covered by contract when he joins.

MOST persons who have seen co-operative farms and machinery co-ops working, agree that co-operative use of machinery in one or the other of these ways is here to stay. After all, it carries democratic principles only a step further than where community services are provided on a co-operative basis in a municipality. These co-operatives are providing solutions to problems for which there are not many other apparent answers.



One of the good bulls bred by the Dunn's of Silverton, Manitoba.

[Guide photo]

THE patter of the trotters' hooves makes sweet music in the ears of the railbirds across the country. Each spring, as the fever of curling and hockey subsides in the blood of our rural folk, their thoughts turn inevitably to the annual sports day. Their town must be "put on the map" for a day. Shall it be a race meet? Shall it be a baseball tournament? Shall it be a rodeo?

If the town boasts a race course, and a few dyed-in-the-wool horsemen, there must be races. And, what town established before 1915 is without one or both? Every main line town from Winnipeg to the Rockies had some kind of one-quarter-mile race track before 1890. Souris, Cannington Manor, Macleod, Battleford and Qu'Appelle, each had a race course before it had a railway. At picnics, as early as 1883, Indians raced their ponies against those of the settlers in straightway runs on the open prairies. Since that time, we have never seen a crowd that did not thrill to watch the "sport of kings."

In the earliest days it was runners in the saddle. Trotters came along in the nineties. Of late years, the runners have moved into the large cities, where "the dash" or single-heat race lends itself to the polite and well-bred gambling racket of parimutuel betting. In the smaller communities, it is the pacers and trotters that draw the big gates and fill the grandstands for the afternoon. The gambling is usually confined to the harmless "hat pool" for a dime or a quarter and you draw your horse by lot. Winner take all. Every

Prairie Harness Racing

Harness races and running races both have their exponents in a never-ending argument, but the boys riding behind their nags are making up for lost time

by A. A. HERRIOT and W. A. SHOULTS

row in the stands has its own lively hat pool going on each heat.

A race card usually offers three or more races of three heats each for an afternoon's entertainment. (It used to be "best three in five" like a hockey final.) The purses are not large and the first four horses in each heat share the prize money according to place.

Horses are classified on the basis of the amount of money each has earned previous to his entry in the race. There are colt races for three-year-olds. There often are futurities, in which the entry must be made as soon as the colt is born. The 2.30 class is for small winners only. As a horse earns each \$100 more he moves into a lower three class as 2.28, 2.26, to 2.20, 2.15, to the free-for-all. In stake races or early closing events, for larger purses, its eligibility is decided by the horse's earnings before the date of entry. He may win more if he can in the interim. Rules are always fair.

WHO has not thrilled to see a "blanket finish"? The bold-going trotters, the smooth-stepping side-wheeling pacers, thundering down the home stretch in a desperate drive to the wire is a stirring spectacle. Men and women and children love it. One win in a hat pool makes anyone a con-

firmed harness horse fan for the rest of life.

Harness racing is an institution and a tradition across the prairies. The automobile, in the twenties, the depression in the thirties, nearly killed it. But it is coming back strong. There is a circuit of 20 meets in Manitoba. There is one from Estevan to Shaunavon in southern Saskatchewan, and another based on Battleford and Prince Albert to the north. In Alberta, there is a circuit south of Medicine Hat and Calgary; and another up Edmonton way.

Harness racing is a hobby. Its reward is the blood stirring applause that greets a winner. Driving in front is an addiction that cannot be cured. Success with trotters and pacers requires patience, skill, courage and know-how. Men in their seventies, yes, even in their eighties, will sweat for days to break and train a prospect. Farm boys in their teens love it, and once they drive a winning heat they are never the same again.

The horses are magnificent and heroic. They love to show their speed and manners. They learn every trick of the game. They are in perfect condition. A mile at top speed is a severe test of endurance and a racer must repeat three times in less than an hour

and a half on race day. A race horse must have head, heart, muscle, wind and courage.

It takes weeks of drill practice before a horse is ready to start racing. The horse and driver must be in perfect accord. One mistake in a fast heat will lose it. It takes fortitude to pilot a colt in a field of eight or ten starters. Whirring bikes, flying hooves, and a roaring crowd is no place for a hot head or a weak heart.

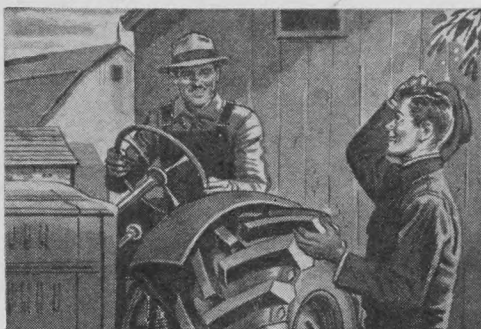
RACE meets begin each year about May 24. Sports days provide the occasions through May and June. Fairs through July and August. They carry on until harvest is at hand. Crowds gather from a radius of 200 miles if the weather is good. It is nothing to find an attendance from 2,000 to 10,000 at a meet. The horses come in trailers, trucks and special vans. The horseman often brings his whole family along.

If a meet is close to the international boundary, horses from the U.S.A. turn up looking for easy money. At points where two circuits touch, horsemen jump from one to another in the same hope, if they have a good horse. In 1950 at Deloraine there were 20 American horses and ten from Saskatchewan. At Virden these figures were reversed. At the fairs at Brandon, Portage and Carman, all the best horses fight out their rivalries at two-day meets, and the grandstands are too small to accommodate the crowds.

The spectators play their hat pools and spend a carefree, happy afternoon applauding winners. Harness racing is a part of our rural way of life.



"My Neighbor told me how to save time on my farm"



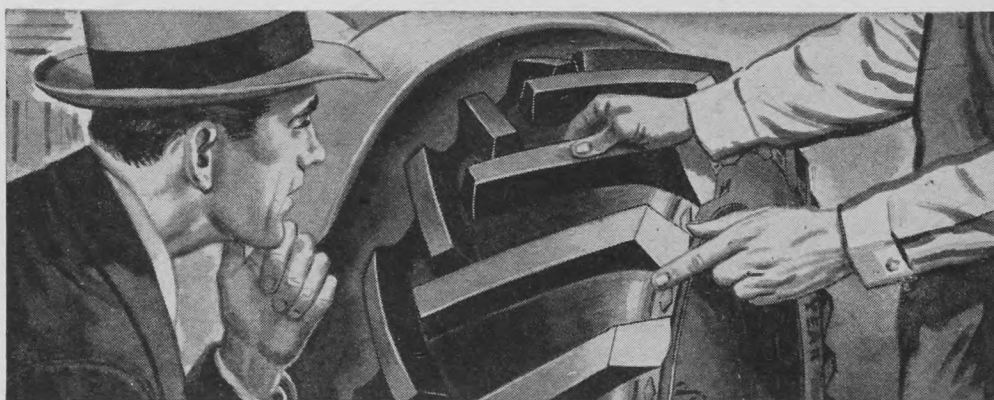
1. One day I asked my neighbor why he did more work in less time with his tractor than I did with mine.

"Because your tires slip more than my Goodyear Super Sure-Grips," he replied. "I cover more ground every time my wheels turn because Goodyear's o-p-e-n c-e-n-t-e-r tread slips less on any soil in any weather."



2. "Why is that?" I asked.

"Bill," he replied, "traction depends on a tread's ability to clean itself. Now, in the Goodyear o-p-e-n c-e-n-t-e-r tread there are no pockets or mud traps to prevent the lugs from penetrating the soil, and the tread automatically cleans itself because the lugs release the soil by a normal flexing action as the tires roll."



3. "But my tires have an open centre tread too," I said.

"Sure," he answered. "There are lots of imitations of the Goodyear o-p-e-n c-e-n-t-e-r tread, but look-alikes don't stand up performance-wise. You see, Goodyear developed—and discarded as unsatisfactory—scores of different tread designs before they perfected the Sure-Grip tread."

"But what makes the Sure-Grip tread best?" I asked.

"See these straight unobstructed lugs? Because they're straight, they penetrate the soil to their full length and depth—get a clean firm bite. And also because they're straight, their

entire length is diagonal to the direction of travel, and each lug gets a full-length grip every turn. And see how the lugs are set closer together at the shoulder than at the center? That gives a wedge-grip while they're in the soil—means greater pull, less slippage—minimizes jerking and slipping that cause excessive lug wear."

"Bill," he continued, "you get Super Sure-Grips for your tractor and you'll save a lot of time in year-'round farming operations."

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MONTHLY

The International Wheat Agreement

Canada will not withdraw from the International Wheat Agreement nor will this country seek, during the present term of the Agreement, any upward revision of prices thereunder. Such was the statement made in the House of Commons at Ottawa recently by the Rt. Hon. C. D. Howe, Minister of Trade and Commerce.

Mr. Howe was answering questions put to him in Parliament which arose as a result of some recently voiced criticisms of the price provision of the International Wheat Agreement. These were founded upon discrepancies in prices for wheat sold under the Agreement, and that exported outside of the Agreement. For example, the present Canadian price under the Agreement is approximately \$1.90 per bushel while for wheat exported outside of the Agreement the price has been nearly 40 cents per bushel higher. True, there are not many sales of such wheat outside of the Agreement, because Canada's supply of milling wheat is not sufficient for many such sales. However, still higher prices prevail for wheat bought in the United States.

This fact has led to numerous suggestions that perhaps the countries which are parties to the Wheat Agreement might concur in some upward revision of price. Theoretically that would be practicable. Under one clause of the International Wheat Agreement amendments may be made if they are agreed to by two-thirds of the votes held by importing countries and two-thirds of the votes held by exporting countries. There would however be small likelihood of obtaining that measure of agreement for higher prices from the importing countries. Moreover, if any such change should be made, importing countries which did not agree would have the option of withdrawing from the Agreement.

There has been, of course, no suggestion that Canada should withdraw from the Agreement. Everyone recognizes that this country is bound to fulfill its obligations thereunder even if the Agreement turns out to be more burdensome on the exporting countries than was anticipated when it was signed. Nor were the suggestions for a revision of price schedules based on market conditions outside of the Agreement. When it was signed the exporting countries realized that the maximum price set might prevent them from obtaining as much as the international market might otherwise have yielded. That situation was anticipated in the belief that later advantages might develop from the minimum price provisions of the Agreement. The desire for a revision of price schedules was based rather on the fact that great increases in cost of production had taken place since the Agreement was signed, and that in consequence both maximum and minimum prices established under the Agreement now appear to be unduly low. Such a development had not been foreseen when the Agreement was signed and consequently no safeguards against it had been attempted. The Agreement did make provision against a possible decline in the exchange

value of the Canadian dollar, and that is why the present maximum price is approximately \$1.90 in Canadian funds instead of \$1.80 as originally established. That however is as far as the protective provisions went.

Increased Quotas Wanted

Lately the International Wheat Council has been under pressure from wheat importing countries. Some, not previously members of the Agreement, have sought to join it. Others, already members, have sought to increase their quotas.

Such requests have been resisted to a considerable extent by the exporting countries. That is not so much because an increase of quotas might deprive exporting countries of the opportunity to get higher prices for certain quantities of wheat. It is rather because of a necessary limit upon the quantity of wheat which an exporting country can guarantee to deliver from year to year. Canada's commitments are already well above 200 million bushels annually. That is not a large quantity for this country in a year when good crops are realized. It can however seem large when wheat crops fail or are damaged. This year, for example, Canada has already reached the limit of its ability to sell good milling wheat because of the great quantity of frosted wheat included in the 1950 crop.

On the other hand the desire of importing countries for larger quotas is not altogether based on present price advantages. Very largely it results from the wish to insure sources of supply. Countries of western Europe which in the past have obtained wheat from Russia and from Danubian countries want to relieve themselves from any dependence on supplies from behind the iron curtain. They are willing enough to buy such grain on occasion when it is available, but they realize the risk of getting into a tight position if they have to depend upon such supplies.

The Danubian countries used to supply 50 million bushels of wheat, or more, every year to the countries of western Europe. Their ability to furnish large quantities either of wheat or of other grains is now a matter of doubt, because of growing population, because of disturbed internal conditions affecting production, and also because of the political control which Russia may choose to exercise over their trade.

French Wheat Ambitions

France, which to a small extent is an exporting country under the International Agreement, is endeavoring to promote an arrangement which would enable it to increase its exports outside of the Agreement. It has put forward a proposal for a European agricultural pool. In essence this is an invitation to other European countries to rely on France for wheat which they might require in addition to the quantities guaranteed to them under the International Agreement. The endeavor is to create a common European market for wheat.

In some quarters this is described as an attempt on the part of European countries to protect themselves against monopoly selling by various exporting countries. To some extent also, it

COMMENTARY

appears to be based on the idea of protecting themselves against unnecessary drains on dollar reserves. So far the scheme is only in the early stages of discussion. One of the chief obstacles it will meet is the fact that normally the other European countries do not want to import the soft type of wheat produced in France but prefer to buy hard wheat from Canada and other countries in order to make a satisfactory milling mix with their own soft wheat.

Wheat Board Payments

The Canadian Wheat Board has now completed mailing of cheques to cover the final payment on the five-year pooled sales of wheat for the five-year period ended July 31, 1950. That followed interim payments previously made on wheat, oats and barley delivered during the current crop year, 1950-51. These four payments combined represent a total distribution direct to producers by the Wheat Board since the first of the year of \$185,587,892.

In earlier years the Wheat Board had required the surrender by producers of participation certificates before such cheques were issued. Under a new system of record keeping recently installed by the Board that procedure is no longer necessary. Cheques are made up from the Board's own copy of participation certificates. This means that the Board is able to close its accounts in respect of any payment by a cheque-writing operation completed at one time. Formerly accounts had to be kept open for a long time until all producers had claimed the amounts due to them by sending in participation certificates. Indeed there are some considerable amounts still outstanding in respect to earlier crops for which producers have so far neglected to make claim.

Experience in respect to earlier payments suggests that producers might be well advised to cash Wheat Board cheques when received. Otherwise if these are put away for safekeeping to be cashed at some later date there is considerable danger that a number of them may be lost or overlooked.

This year's direct payments by the Wheat Board are made up as follows:

Interim payment of 20 cents per bushel on wheat of the current crop consequent upon increasing the initial payment from \$1.40 to \$1.60 per bushel, \$49,631,123.

Interim payment on barley consequent upon increasing the initial payment by 20 cents per bushel, \$11,173,730.

Interim payment of ten cents per bushel on oats, consequent upon an increase in the initial price, \$5,708,000.

Final payment on five-years' deliveries of wheat, 8.3 cents per bushel on 1,427,600,000 bushels, approximately \$119,000,000.

To issue cheques by the hundred thousand for so large a sum of money, and to get them out within a short space of time, represents a tremendous task both in accounting and in mechanical production. It was accomplished only through use of the very latest machinery for accounting and cheque writing. The written records for each producer are translated into

a series of punched marks on individual cards. According to location these punch marks may indicate a date, an address, a quantity in bushels or an amount of money. When the time comes for payment these cards are fed into a machine, which by a system of electrical contacts through the punch marks activates a calculating device to arrive at the amount payable, and a typewriter which produces the necessary words and amounts. Had it been necessary to employ old-fashioned handwriting methods it would have been an almost impossible task to produce the necessary number of cheques and get them into the mail within any reasonable length of time. The system employed made possible the issue at times of cheques at the rate of 20,000 per day.

In addition to the foregoing payments since January 1, several payments were made between August 1 and December 31 last, as follows:

Final payment on flax of the 1949 crop, \$29,631; final payment on oats of the 1949 crop, \$15,546,321; final payment on barley of the 1949 crop, \$26,643,973.

Thus the total of cheques issued during the current crop year by the Canadian Wheat Board direct to producers, in addition to initial payments received at the time of delivery, amounts to \$227,807,822. Considerably more than a million cheques were issued to make these payments.

Initial Prices

Initial prices for the basic grades of wheat, oats and barley have now been announced by the government for the crop year 1951-52 commencing on August 1 next. Under the Wheat Board Act the initial price for one grade of each grain is set by Order-in-Council. It is left to the Wheat Board itself to establish the initial prices on other grades. And following usual practice the Board will probably delay doing so until just before the new crop begins to move, so that market conditions and the nature of the crop can be taken into account.

For wheat the initial price, basis No. 1 Northern in store terminal elevators at the Lakehead or at Vancouver, will be \$1.40, the same as prevailed at the beginning of the past crop year. Similarly the initial price for oats, basis 2 C.W. in store at Lakehead terminals, will be 65 cents per bushel, the same as last year. The basic grade for barley is No. 3 C.W. 6-Row, the initial price for which, basis in store Lakehead terminals, will be 96 cents per bushel as against 93 cents per bushel at the beginning of the current crop year. That does not mean that the initial prices on lower grades of barley will necessarily be higher in the new crop year. The change quite conceivably may mean nothing more than a widening of the spread between malting and feed grades of barley.

Corresponding with what took place in the current crop year, producers may expect to receive an interim payment at some time during the crop year, at which time there will be an advance in the initial price if market conditions then appear to warrant that step.

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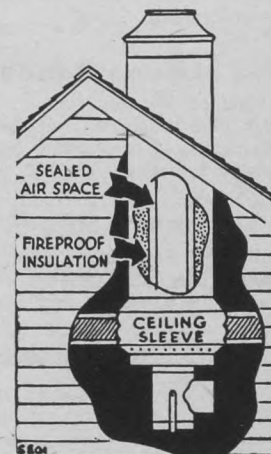
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Salvage Man

Continued from page 11

failure has the habit of clinging to a man even though he may not be responsible for that failure. But the reader will have guessed from what has gone before that failure only hardened his resolve. He continued as before on the part-time salary from the Aberdeen-Angus secretaryship, and embarked on a private business of order-buying cattle, both purebred and commercial. This enterprise prospered moderately through the early years of the depression, and would probably have widened but for two events which make up an interesting bit of Manitoba's agricultural history.

IN Crawford's school days he was a familiar visitor at the neighboring farm of J. D. McGregor. This commanding personality, after making a fortune in the Klondyke, established probably the largest and finest purebred herd of cattle in Canada on his Glencarnock farm near Brandon. During the first third of the century he was the dominant figure in the black cattle breed association.

J. D. was a man of spacious ideas and vision. He was not so fortunate in his management of detail. His glittering dreams should have been put into the hands of others to develop—people who knew when to walk and when to run. After this lapse of time, the most commonly accepted explanation of the troubles that befell him is carelessness in handling breeding records, aggravated by the tremendous scale on which he was operating.

The news broke in 1932. Some Glencarnock pedigrees were discovered to be inaccurate. That is equivalent to a bank handing out bogus money, for the whole purebred livestock business is based on confidence in pedigrees. It called for immediate and thorough-going action. The burden of it fell on the young part-time secretary who had to camp on the Glencarnock records for weeks to study 1,500 pedigrees and verify them against identifiable animals. Then he had to proceed to government house and inform its august occupant—for J. D. was by this time lieutenant-governor of Manitoba—that duty required him to commence a line of action that would ruin the old breeder. The task was made no easier because of the cordial relationships which had existed between the two men, and the many opportunities which had been put in Crawford's way by the older man.

In the end some McGregor pedigrees were cancelled, and the Glencarnock establishment never recovered from the loss in prestige. But the unflinching way in which the Aberdeen-Angus Association, led by its secretary, carried out this self-amputation upheld, yes enhanced, its prestige in Canada and beyond her borders. No black pedigree has ever been challenged since that day.

ANOTHER event which raised Crawford's stock was the great sheep fiasco. In the boom days of the late '20's a group of Winnipeg business men, who should have known better, were talked into a grandiose scheme to make Manitoba the sheep province of Canada. They joined hands to form the Manitoba Livestock Credit Company. Its plan of operation

was to buy 100,000 range ewes and sell them to the grain farmers of this province in small lots. The first draft of 10,000 ewes was bought in Montana and paid for at \$14 a head—a boom-time price. A manager was appointed who, whatever his other qualifications, could make no claim to being a livestock expert.

At this point the 1929 bubble burst. It became a question of liquidating the enterprise as quickly as possible. Its promoters realized by this time that only a livestock man can succeed in a livestock undertaking. Accordingly they brought in the man who was shortly to unravel the Angus pedigree chemozzle to save as much as possible from the wreckage.

Shortly after these two salvage operations were completed the university funds scandal broke. Crawford was selected as a member of the completely new board of governors. But its chairman, D. C. Coleman of the C.P.R., who knew the inside story of Crawford's recent activities, insisted that here was the man to carry out the board's tough policy. The board had to swallow a bit at appointing one of its number to a salaried post, but Mr. Coleman's insistence carried the day.

DURING these years Walter Crawford was making a name for himself as a judge of cattle. He commenced placing ribbons in the big time in Edmonton in 1921, and has never really stopped since. In that interval he has judged at every important fair in Canada and some in the United States. Few black beasts of any importance have not come under his hand. He has judged six times at Toronto's National Exhibition, and placed the fat steers three years in a row at Brandon, Manitoba's premier beef show.

Water Crawford retained his position with the doddies until September, 1947, giving him 27 years in harness, a longer time than any other Canadian has served any beef breed in the same capacity. In that year his mantle fell on Percy Sackville, formerly professor of animal husbandry at Edmonton.

In 1944 Crawford wrote the history of the Aberdeen-Angus breed in Canada, thereby stealing a march on the other beef breeds which have nothing to show like it. No other person was so well qualified to do the job. Unbeknown to him, this writer conducted a little test on Crawford. He was shown through The Guide file of black Angus pictures running back 40 years. Now 100 Aberdeen-Angus cattle look as much alike to us as 100 Hottentots, yet Crawford promptly and unfailingly named every one that had attained any prominence.

Of Crawford's work as comptroller at the university there is little to say here. No man gathers laurels by repeatedly saying "No" with calamitous finality. Those who know the full worth of his services during the penny-pinching years are the ones who know where all the skeletons are buried and they don't talk for publication. Happier times have dawned on Manitoba University, calling for a happier outlook. The short man with the short word doesn't have to thunder from behind his eloquently shabby table. Even the shabby table has gone, last symbol of a salvage operation. And the salvage operator has been replaced by one who, while answering to the same name, says "Yes" with as good a heart.

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Originating in East Bengal, jute is made into sacks and travels to the four corners of the earth

by HARVEY DAY

JUTE is rightly called the "Wrapper of the World," for many edible commodities are either exported or imported in bags made from this fibre. Low priced cloth caps, cheap "tweeds," linoleum, carpet backing, upholstery, roofing fabrics, sewing and domestic twines, string and some kinds of dress materials, as well as a hundred other commodities are manufactured either from pure jute or jute mixed with other fibres.

Today 97 per cent of the world's jute crop grows in one area—East Bengal; 80 per cent is cultivated in Pakistan; and 17 per cent in India. The other countries of the world produce about 40,000 tons or three per cent, and though efforts are being made to grow jute on a commercial scale in French Indo-China, Japan, Formosa, China, Manchukuo, West African Sudan, Egypt, Turkey, Iran, Java, Thailand, Paraguay, Brazil and Mexico, so far only Formosa with 30,000 tons, has produced it in any quantity.

There are various reasons for this. Jute grows best in damp heat, though excessive moisture can ruin a crop. Provided there is enough water, it can be grown on high as well as low ground, generally in rotation with other crops which do not exhaust the properties of the soil. Often rice is grown on the same soil as jute, and immediately after the jute crop has been mowed; but the most favorable method is to grow jute one year and rice, rape or mustard, the following, thus giving the soil a chance to recuperate. As in the case of rice grown in the same districts, the minimum either of manure or artificial fertilizer is used. This keeps down the cost of production.

Nor is modern machinery used to plow the fields or harvest the crop. The earth is turned by crude, bullock-drawn implements, and the clods broken by heavy wooden mallets, much in the same way as they were 50 centuries ago.

The entire jute area, whether the two million acres in Pakistan, or the half million in India, is cultivated by smallholders, whose families have farmed the same land for centuries. They alone seem to have acquired that peculiar hardness which enables them to stand waist-high in water in the burning sun, for hours at a stretch, stripping the bark from the pith, and washing away the foreign matter by flicking the strands of fibre over the surface of the pool. The operation is arduous and unpleasant. Many years ago the British government persuaded some hundreds of peasants from South China to do this "retting," but they discovered that the Chinese coolies succumbed to the malaria which is prevalent in East Bengal and contracted hookworm, trench feet and other diseases from which the natives of the district seem almost immune.

To Britain must go the credit for developing the important jute industry. In the eighteenth century jute was a fibre hand-woven for local use, and the earliest mention of the industry is found in the Ain-i-Akbari, which refers to the production of sack-cloth

in Ghoraghat, in North Bengal. Early records of the John Company also contain numerous references to trade in gunny; one in particular—to an order for 1,200 bags of fine rice and 2,000 gunny sacks for Fort Malboro'. A century later, there was a small export trade in gunnies—rough cloth made from jute.

In the last decade of the eighteenth century samples of jute, flax, hemp and other fibres were despatched to London, so that their properties could be investigated in order that ropes for ships, and other commodities could be woven from them.

There soon arose a demand for fabrics made from jute and a huge handloom industry sprang into being and flourished in Bengal. In 1850 the province exported £150,000 worth of gunny bags and jute cloth—a considerable sum in those times. Soon after, Dundee emerged, and with her machinery spelt the doom of Bengal's handloom industry. Then, with the help of scientists machines were invented that could produce a finer fabric called hessian, which found a ready market in the rapidly expanding U.S.A.

Further improvements in machinery and treatment of the textile enabled jute to be bleached, waterproofed, and united with finer textiles to form a thousand commodities ranging from tarpaulins and canvas to fine sheeting. New uses continued to be found for the jute every year.

TODAY, because she grows 80 per cent of the world's jute, which includes all the finer qualities, Pakistan has a virtual monopoly of the fibre. Partition, however, dealt the jute industry a tremendous blow, for it severed the jute area into parts under

The Life of the Soil

Continued from page 7

insufficient nitrate material already in the soil to feed next year's crop, while the bacteria break down the straw and eventually leave an excess supply of nitrates for the crop.

When the process of decay slows down, what is left is humus; and it is this more stable, final product of the decay of plant and animal material that is believed to be largely responsible for those favorable soil conditions associated with organic matter in the soil. It is jelly-like in nature, absorbs gases, and can hold plant foods more effectively than clay.

ORGANIC material in soils performs several very useful functions, in addition to feeding the soil organisms. Besides maintaining crumb structure or granulation, its jelly-like and sticky character enables it to hold sand together. It also helps to retain moisture in the soil, because partly decayed organic matter may hold several times its own weight of water. When mixed through coarse soil which has large pores through which the water can escape readily, organic material swells when wet and partly closes these pores and enables the soil to hold more water. Organic material

separate governments. Although Pakistan grows most of the jute, India possesses the mills; more than a hundred massed along the river within 30 miles of Calcutta. At first there was a deadlock, but as both countries belong to the Commonwealth, they sat down sanely at an Inter-Dominion Conference in 1948-49, where India was granted a quota of 5,000,000 bales. This in the following season was reduced to 4,000,000, not because India was then growing more jute, but because of her adverse trade balance with Pakistan.

Now that both India and Pakistan possess their own mills, which were built during the last 50 years, Dundee, Scotland, takes third place as a manufacturing center. Her requirements are a mere 100,000 bales. The U.S.A., together with all other jute importing countries take another 1,500,000 bales.

After jute has been harvested, retted and dried (drying is a particularly skilled operation, for if badly dried the fibre loses color) it is sorted and pressed into bales for consignment to factories.

There are, incidentally, two kinds of bales: kachcha or temporary bales, which are loosely packed and weigh about 328 pounds; and pukka, weighing 400-410 pounds which are compressed into a capacity of 10½ cubic feet and bound with metal hoops. Jute for export is always sent by pukka bale, as it occupies less space.

In the past almost every bale of jute flowed down the river to Calcutta and thence to ports all over the world. Exports of raw jute comprised one-quarter of the total value of all Indian exports and in 1945-46 earned \$92,000,000, of which \$74,000,000 were spent on food from abroad. And, over a period of years it was jute which enabled India to maintain her favorable trade balance with the rest of the world. Her adverse balance after 1947 is due to the fact that Pakistan is now the world's leading cultivator and exporter of this textile.

also tends to reduce soil erosion by loosening the soil and allowing more water to enter, with the result that there is less run-off from the surface. Where there is much humus the soil color is usually dark or black; this absorbs and holds the heat on bright days and raises the temperature of the soil. Such soil is also more easily warmed because it is drier, owing to the easier percolation of the water through it. This means that crops will start sooner and grow more rapidly in early fall and spring. Another benefit of organic material is that in the process of feeding, the soil organisms produce acids. These attack the mineral parts of the soil and release more mineral plant food than would otherwise be available. Organic matter is also the one natural source of nitrogen for crops, most of which is eventually made available to the crop.

NEARLY all that has been recounted so far in this article has been known for some time. It is descriptive and factual, but by no means exhausts the information of vital importance which is obtainable below the surface of the soil. Thousands of lectures have been delivered and many books written, which, aside from a more minute examination of existing knowledge, have gone little beyond this skeletonized account. (Turn to next page)



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Until fairly recently soil science was not able to relate soil conditions to the health of plants and animals. During comparatively recent years, science has greatly increased our knowledge of soils to our great benefit, and a considerable body of knowledge has been gained with respect to the trace minerals (see Country Guide, May, 1951). The development of a wide range of antibiotics, those "killer" types of micro-organisms which have been isolated and found of use in the control of disease and the healing of wounds, have helped to focus attention on the soil and its under-surface life.

There has also developed a school of thought associated with the life of the soil and the use of organic material which has become known as the "organics" or "compost" school. This group is led by Sir Albert Howard, a British scientist, who, during many years of work in India and after a persistent effort to relate soil quality to human health has come out in opposition to the use of commercial fertilizers. This school of thought, which seems to be growing in numbers, holds the view that healthy plants and animals, including human beings, can generally resist the attacks of diseases, and that healthy plants grow in healthful soils. They point to a growing body of evidence accumulated in India, Britain, and the United States as well as other countries, which

points to the conclusion that at least some insects often very troublesome to farmers, do not seriously injure properly nourished and fully healthy plants. Sir Albert Howard reports, among numerous illustrations, the case of two groups of draft cattle in India, kept with only a fence between them, which they could easily reach over. One group was cared for in the manner current in India, and the other on composted soil. The one group suffered the usual ravages of a common and most serious disease while the other remained entirely unaffected.

Dr. William A. Albrecht, in Missouri, has reached the conclusion that rather than accept mere bulk yield as a criterion of fertility in our soils, it would be better to take the total yield of protein per acre, and the completeness of this protein in terms of at least the ten essential amino acids, as the criterion of our success in soil management and of the quality of the foods produced. He points out that man has lost any instinct he may once have had for selecting the proper foods. Cattle, on the other hand, still retain this instinct and, although they follow their preferences, will eat almost any plant on fertile soil regardless of whether it is classified as a weed or as a respectable forage crop. Much attention is now being paid to the animal protein factor (APF), which turns out to be the same ingredient that the pig and the hen have

always been seeking instinctively when they followed the cow.

Dr. Lionel James Picton, in a recent book "Nutrition and the Soil," devotes a chapter to the association between certain fungi and the roots of plants. He says: "The immediate question before us is how the mycorrhiza imports into the roots of its associated plant organic nitrogenous substances. An examination of the process shows clearly that the fungus threads grow into the plant cells and there they are digested. . . . It seems an irresistible conclusion that here we are in the presence of a secret of the entry of complex organic substances, derived from the residues of one generation of living things, into the plants which form the first of the series of the next generation."

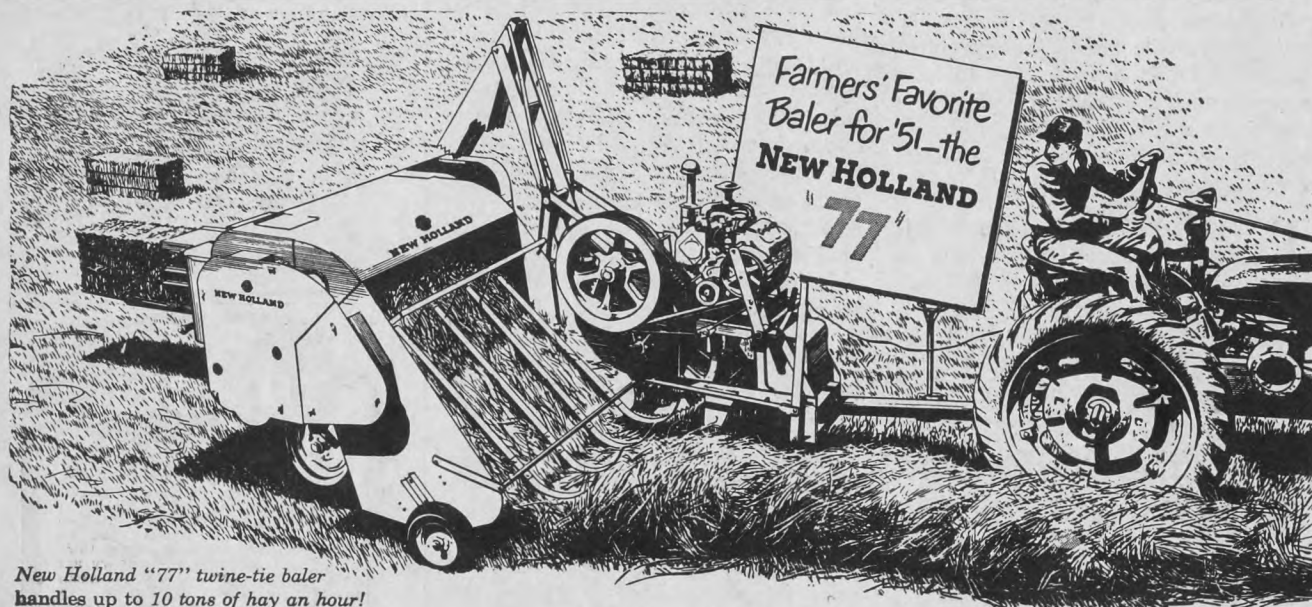
IN March of this year the University of Wisconsin reported the possibility that potatoes are "caused" by a helpful fungus. Three research workers have found a fungus which lives in potato tubers and the evidence they have leads them to think that without this fungus the potato plant will not produce tubers at all. This conclusion was arrived at after a study of sixteen varieties and strains of Wisconsin potatoes, together with samples from seven other states.

These findings, says the report, fit in with the general discoveries of others, that there are foreign micro-

organisms in many plants. These may be carriers of nitrogen and other soil solids and some may have no effect on plants. An orchid, for instance, cannot grow at all without first being inoculated with a fungus.

"The micro-organisms, it is suggested, might be the reason for the better growth of plants on new soils, or soils with plenty of organic matter. When cranberry plants are grown from seed, then set into a bog that has no mycorrhiza organisms, the plant will grow but will not produce any cranberries." The Wisconsin researchers feel that, "high yields could be related to a favorable balance of micro-organisms in the soil."

Food of good quality is now of more importance than ever before in the history of mankind. The population of the world is growing rapidly. Our soils have been exploited in ignorance for a long time. Protein is the one vital factor in high quality foods and there is evidence that the protein content of food produced from soils that have been cultivated for a considerable length of time is showing a gradual decrease. Whether the claims of the compost or organics school can, or cannot, be fully substantiated, is not the purpose of this article. It would appear, however, that our progress toward more healthful living will require more attention to the life of the soil from which we grow our sustenance.



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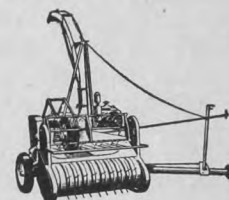
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The Secret

Continued from page 12

minute. He'd break his trail and trick you and then you'd feel like a fool and take off for yonder like a rated dog. Once when I was lying hidden in dense fern by the river, Nat happened by along the trail. It was 50 or 60 feet away and he couldn't have had an inkling I was there, yet when he came opposite he stopped short and studied the ferns suspiciously. Then he went swiftly out of sight. He had sensed that someone was there watching him. There never was another woodsman like Nat.

ONE day I learned one of his close secrets. I saw his pet coon leave the cabin and I followed him, right to this tree and watched him climb up to that second hollow and pop inside. All coons look alike, but I knew then that Nat's pet was old Bandit himself, the wildest coon in the country. I thought about that for weeks.



"Mischa speaks only Greek. Jerico translates!"

The book of the woods opened for me fast. I was learning through patient watching the things Nat was born with or knew instinctively. I had sworn never to demean myself to him. I maintained an Indian dignity and an aloofness the equal of his own. It was hard.

Once in the fall we met on a far trail. My heart leapt as always at sight of him. I wanted to hurry forward and cry out, "Hello, Nat." But I said nothing and stood looking at the woods as he came, silently up. Some ground spiders were coming up a nearby rise through the dead leaves; a couple of others were climbing the trunk of a hickory.

"Goin' to turn cold right soon," I said, indicating the spiders with utmost paucity of gesture and tone. I hazarded that guess from something I had read about spiders seeking high ground before bad weather came.

He nodded almost imperceptibly. His glance took in my rifle not without approval. "Might even snow," he gave out and pointed beyond my shoulder with a knobby, parchment-colored finger with a jagged, broken nail. How many hundredweight of earth, rock and trap-iron had Nat handled, I wondered.

I turned quietly and my sharp eye picked out a swamp rabbit half hidden in its form. Its coat had turned almost white, an unusual thing in these parts. I nodded as Nat had done, then we passed on silently, as if we had talked too long and said too much. Once I half turned my head and was aware of Nat gazing after me. A great pride filled me.

But greater pride was to come, for my prediction came true. A week later it turned cold. There was a big rain and later it snowed, a mighty rare

thing hereabouts. It was colder than any winter we'd ever known.

Not long after that my big chance came. Sometimes Nat was paid to catch animals for zoos or furnish specimens for some museum. Down in old Freed Pennix' turpentine woods one day I heard Nat telling Freed that he had a museum order for a black fox-squirrel, one of the rarest, shyest animals of the woods. He'd be paid enough to tide him through the winter, Nat said, if only he could find one.

"It's five year or more since I set eyes on a black flier," Freed Pennix said. "Rare as blue roses, them scapers are. You'll hunt far."

I felt the hair stir along my nape as I listened. I didn't say anything, but next morning early I was standing under a big pine by Nat's cabin when he opened his door. It gave him a rare start as I stepped out of the shadows beside him—the kind of start he'd often given me.

"I know where there's a black flier, Nat," I said in a voice quiet as the dusk beneath the trees. "I'll show you if you want."

His pale blue eyes looked square at me, and I saw that I had him at last. He stepped into the cabin and came out with his gun. We moved away, two shadows among shades, troubling the stillness of the woods so little as hardly to have been there at all.

A whole week I had spent watching each day from the depths of a fern thicket till I discovered the hole in an old dead maple where a fox-squirrel lived. It was one of the secrets I had guarded long and I gave it to Nat with all my love. We were more than an hour creeping up to the secret place in the woods, and it was another hour before the fox-squirrel appeared, clinging to a high limb exactly like a clump of dry Spanish moss.

Nat got him, a beautiful eye-shot at 100 feet. It had to be that way, for that specimen was going to be mounted.

Nat waited for a space in complete silence, after all movement had stopped in the leaves below the maple. He never failed to do this after taking a life. It was the instinctive ritual of a natural mystic. Paradoxically, Nat hated to take life, though he was a hunter born.

"I'll connive to give you somethin' fer this, kid," he said as he picked up the prize.

"Don't want anything! I know where there's another black one," I said largely. This was not quite true, but effective.

Then, using sheer will power, I turned and slipped away in the woods.

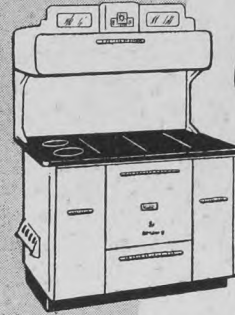
What old Nat connived for me was my first deer hunt. The season had come round and Nat stopped me in the woods one day and told me to be at his cabin before daylight next morning. Deer hunting was a man's business, and old Nat, the mightiest hunter of them all, was taking me with him as a gun-mate.

In the mist-dank cold before the dawn we moved like two phantoms up along the hardwood slopes behind his cabin. I was taut as a bow-string and hair-trigger nervous. I might miff something and then Nat would snort, and cast me off in disdain. Killing your first buck—that was synonymous with coming into manhood in those days. Young Freeman Tedder had

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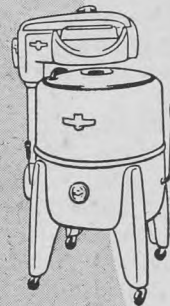
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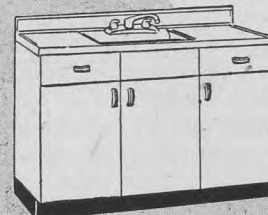
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shot him a buck at 15, but no kid had ever done it, going on 13.

This was a still hunt, an Indian hunt. As we neared the ancient feeding ground of the deer Nat whispered a few words and we spread out, silently, two fledged hunters, equal and reliant on each other like the parts of one machine. It was wonderful.

SOON we were far beyond sight or sound of each other. The mist swirled in smoky streamers against a landscape vague and heroic. Everything was cold and vast. The slightest sound magnified in the stillness. The chuckle of the distant Branch became the lapping of the storied Ohio, river of danger. I thought about Nat, of Roger's Rangers, Chief Pontiac the proud, old Chingachgook and Duncan threading the perilous country of the Delawares.

It wasn't near light yet when ahead of me a drifting whorl of mist stopped, moved on, and stopped again. Then bounded buoyantly down the slope as the old Sharps leaped to my shoulder, gleaming steel itself. My eye had always been a keen one in the woods, but that shot was a miracle, for there was neither time for eye to lower to the sights, nor light to aim. Yet that which bounded through the air pitched forward with a bleat and a rattle of stones and stayed bone still. It was a fat buck and it lay as if asleep as I came up, a ball through its heart; tan-gray all over like the very stuff of dusk.

A kid's faith is a strong thing. That was what won for me that morning—and all that concentration on marksmanship that had gone beyond skill into intuition. I was standing still a little way off, the way Nat did over a kill, when he came up. The dawn was just beginning to break so that I could see the look on his face as he stopped and peered.

"Six times," he muttered. "Clean through the heart." His voice was changed. "I'll liken to call that a shot."

It was a thunderous encomium from him. For a minute I felt queer and almost cried, but I went stolid instead, holding against the tide of feeling. I knew English, good school English, but I said through closed throat: "I'd liken to give you the meat and hide, Nat."

He nodded as he knelt with his knife and set about the skinning and cutting up. The head I've always kept. It's the one mounted over the fireplace in the east room.

Well, sir, you'd think that would be about all, wouldn't you? (Uncle Luce would say at this point in the story.) But it wasn't. I was due for still another winning that fall. It was my year. (Uncle Luce would be loading up his second pipe about here, pausing an artful minute or two to tamp the bowl and get it glowing—a smile on his face, as if he were still marvelling over that deer hunt. Each time I heard this tale Uncle Luce seemed to shed a skin or two in the telling, until you could see the great and kindly being he was, shining through his eyes and smile.)

The time had come round for my father to begin talking fox again. Once each year in late fall he would have a high old fox hunt with dogs. Usually it was Big Reddy he and his friends would run. Father wasn't out after the fox's brush; it was the pun-

tilios of the hunt he loved; the long day or night a-field, the mournful lovely cadence of hound music talking to him across miles of woods and fields. And no other fox could give him half the sport that Reddy would.

But that year it was all different. Reddy had been getting too big for his pants. He'd been forty-nining his way about the country all summer, stealing ducks and chickens from almost every farmer along the river. Father himself had lost a couple. Infamously familiar with men and dogs, the cheeky fellow had been robbing hen houses where others of his kind dared not trespass. He fed on eggs and young chicks, too, whenever the chance offered. By fall he had achieved a reputation beyond that of any fox that had ever raided the region. Every settler knew him but by November they'd turned ugly and swore to hunt the despoiler down.

REDDY'S latest escapade had been the raiding of the poultry yards of old Cash Wyble, a well-to-do landowner down at New Canaan. What Cash Wyble said carried a long way through the piney woods and his wrath was the cause of organizing a general fox hunt for the express purpose of bringing Big Reddy low. So father's hunt was spoiled.

The time for the big hunt was the last day of November. I was excited about it all until I saw father had no pleasure in this hunt. He and several other old timers who took pride in the chase, refused even to lend their hounds to the hunt or be a party to such bedlam.

For this was a chase that broke all the ancient rules of the fox hunt established for hundreds of years, which said that only the dogs might do the killing. Big Reddy was to be shot on sight, Cash Wyble had decreed, providing the dogs couldn't bring him down. Poultry or no poultry, that went against the grain in father. Old Nat, of course, had no truck with such affairs.

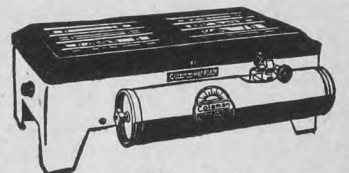
The hunt started on a Saturday morning with the biggest turnout the piney woods had known in many years. Cash Wyble was there with his two hounds, and Freed Pennix and old Sam Wetherwax; the Ballard boys with their coon-hounds and old Rashe Howe from Hat Creek with his nine grown sons mounted on mules, jacks and jinnys. The dog pack swelled by mongrels from the town, numbered 19. The mounted drive spread out in a great half circle. Sounds as from a lynching party swept for half a mile ahead of them.

Father moped around the house that morning. Old Nat I could not find at all. Weakening, I went up into the hills to keep tab on the chase. I didn't want to see Reddy killed, but I couldn't stay anywhere. I read the sounds that came down the breeze, and I saw the hunters get the first glimpse of their quarry a little before noon.

Reddy was used to the chase. Warned by the trail song of the pack he'd taken it easy for the first two hours, trying to lose them among the maze of soggy trails along Turkey Branch. His wiles came to him as he needed them, but he'd never known a chase like this. At mid-day with the dogs pressing close, he sought the rocky hill crests that held little scent. Twice I saw him from a distant hill-



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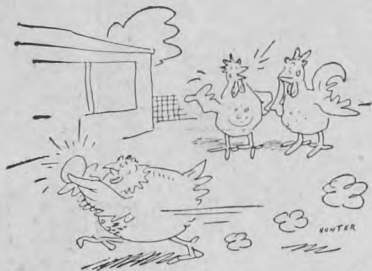
top. His dripping tongue lolling out and I knew his heart was pounding. He was using every trick he knew now to throw off the dogs. All that I didn't see I could piece together by the sounds.

THE long grim afternoon chase began. Neither dogs nor hunters were wasting strength in noise now. Reddy continued to match and mock the best wiles of the dogs, but his lead was shortening. Once he all but lost them when he leaped a pasture fence and ran among a herd of cattle to cover his trail. But the far-ranging pack soon worked out the riddle.

I ranged far and aimlessly that afternoon. I was miserable. My heart was all with the fox. To me as to father, he was an old friend. Still Old Nat was nowhere to be found.

Four o'clock came. Weeks and months seemed to have gotten into that day. The warm trail song from the hills never slackened now. The dogs were working out Reddy's tricks as fast as he could execute them, allowing him no chance to rest his straining lungs and legs. Far in the south tattered storm clouds were gathering. It would rain.

Another hour and the broken angry



"Emma hands the boss her own eggs ever since he started culling the non-producers!"

notes of old Cash Wyble's horn sounded through the hills. The dogs were at fault, and I knew why. Reddy had run across a terrified grey fox, mingled his trail with the other's, then leaped aside among rocks, forcing the foolish grey to run for him. It was glorious—the craft of the thing. I'd seen it all on a far hillside. I stood up and shouted; I couldn't help it. The dogs had rushed on for a long way after the grey and they hadn't yet found where the trail broke.

... And now Reddy was threading the cane-lined trails along the Branch, just below where I sat, while the baffled baying of the pack sounded nearly a mile away. Close to 50 miles the old fox must have run since morning—a record even for him. But he was near the end of his strength. Twice I saw him in the thickets below. He moved in a maze. His hind-quarters rolled with weakness as he went and there was a heavy ball of mud plastered to his trailing brush from the many streams and plowed fields he had crossed. I saw him pause to drink and fall forward in the water. But he had put it over on them, the old strategist. I was exultant as I descended the bluff toward the stream. I felt light as the sunlight.

I moved down the Branch toward Old Nat's cabin, where Reddy's trail seemed leading. He must have his den close by, I thought, as I hurried along the stream. One last glimpse I caught of him slipping through those laurels down yonder. I crept up quietly and stood at the edge of this clearing, watching and listening, wondering how Reddy had vanished so completely.

As I stood there a sudden clamor from the throats of 19 dogs burst out again in broken harmony as if a dozen bells had started clanging all at once. They were much nearer now, baying the trail song. They'd worked out Reddy's ruse. My eye swept the clearing, the woods and the gathering clouds above them in speculation, then held suddenly, pinioned. Only the sharpest woods eye would have picked out what I saw for there'd been no movement. It was the mask of Big Reddy. He was looking out of that highest hole near the top of Coon Castle!

He was sitting, calm and easy up there, smiling a little with flacking tongue. There must have been a sort of ladder going up inside the rotting tree, and he was resting at the top of it, looking out at the world. And then, just below him in that other hole, the masked face of Old Bandit showed for a moment. Coon and fox in a single tree!

As I stood there staring I sensed someone beside me. It was Old Nat. He'd stepped out of the thicket behind, without a sound. He saw the look on my face and I knew my secret was his.

"Oh, Nat!" The words were wrung from me—a sort of gasp. His eyes held mine a long moment, questioning.

I said: "No, Nat! I promise!"

"They're a comin'," he said.

Dark clouds were welling above the woods. There was a gust of wind and big drops of rain began tapping the leaves above us. Dusk had almost come. It was all part of the strangeness of the moment.

The hound chorus was very close now. Nat and I just stood there waiting, as thunder rent the clouds apart and the first grey blades of rain slanted through the trees. Every minute was against the hunters now. The storm, the day's end, all worked to keep Big Reddy's secret.

Then the first of the dogs came tearing up, all dripping with Branch water, racing the storm; the hunters two or three minutes behind, a soaked and sorry lot. At the edge of the clearing here the pack was confounded. It was as if the fox had run himself clean out of scent as he reached the glade. The dogs spread out and quartered back and forth, silent and puzzled. One or two trotted right over to Coon Castle and smelled round the hollow. My heart was thudding. The fox was out of sight, but I shook in my boots. What would happen when they found his hideout?

Nat's eye turned to me, signalling silence, but the dogs had already left the tree. I never knew till much later that the taint of fungus growing thick like it does here, kills all other scent. But don't ever think old Bandit didn't know it.

I JUST stood there close to Nat, showing nothing, but holding hard inside, helping to weave a magic ring-pass-not round old Reddy that none might penetrate. Finally Cash Wyble rode up and called out to Nat, had he seen anything of a red fox passing that way. Nat just pointed an arm vaguely upstream, without answering.

Then we heard Cash calling the hunt off, and they were gone, men and dogs, and there was left only the soft rain, the growing night and Nat standing beside me, and Nat's voice



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Magic's Luscious STRAWBERRY CAKE!

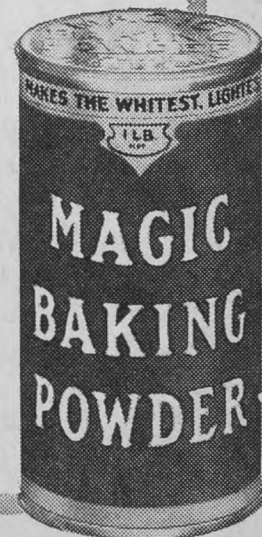
Set up your own strawberry festival—gala in the garden or regal at the table! Grace it with this gorgeous new Magic cake! With big, ripe berries in a cool drift of whipped cream on top. And the filling—a luscious red layer of crushed strawberries... overflowing a cake so marvellously light it *must* be made with Magic!

Yes, with Magic Baking Powder, there's no trick to turning out *perfect* cakes—delicate in flavor, light as a puff! Magic costs less than 1¢ per average baking—protects other costly ingredients. Put Magic on your grocery list today.

MAGIC STRAWBERRY CAKE

1 3/4 cups sifted pastry flour	1/2 tsp. salt
or 1 1/2 cups sifted hard-wheat flour	4 eggs, separated
2 tsps. Magic Baking Powder	1/4 cup cold water
	1 cup fine granulated sugar
	1 1/2 tsps. vanilla

Sift flour, Magic Baking Powder and salt together 3 times. Beat egg yolks thick and light; gradually beat in the cold water and 2/3 cup of the sugar; beat constantly for 4 minutes. Beat egg whites until stiff but not dry; gradually beat in remaining 1/3 cup sugar, beating after each addition until mixture stands in peaks. Add flour mixture to yolk mixture about a quarter at a time, folding lightly after each addition just until flour is incorporated; fold in vanilla. Add meringue to yolk mixture and fold gently until combined. Turn into two ungreased 8" round cake pans. Bake in moderate oven, 350°, 25 to 30 minutes. Immediately cakes are baked, invert pans and allow cakes to hang, suspended, until cold (to "hang" cakes, rest rim of inverted pan on 3 inverted egg cups or coffee cups). Put cold cakes together with sweetened crushed strawberries; top with lightly-sweetened and flavored whipped cream and garnish with whole strawberries.



like part of the dark itself, saying: "I'm liken to be right proud of you, kid!"

For just an instant his hand laid on my shoulder as he said it. It was almost more than I could bear. Hot tears burst forth and ran with the rain down my wet face, but they went unseen in the dimness. That was my great winning, my initiation into the cult of finished woodsmen, apotheosis of all my days in the Cane River woods.

As we turned toward the Branch trail Nat spoke again, whole sentences this time, something reserved for only the chosen few, as he told me one of his deepest secrets. I knew

something of the strange socialism that sometimes works between animals. But only Nat knew why Big Reddy was allowed to take sanctuary in the depths of Coon Castle, a stronghold that for centuries has harbored only coons.

One moonlit night two years before, Nat swore, old Reddy had come laboring through the Branch woods closely trailed by hounds. He'd had a long, hard run and his tongue hung low and his tail dragged. Old Bandit was making for home too, ahead of the chase. They met down there at the edge of the stream and communed a moment, touching noses. Bandit saw Reddy's plight. He hated dogs and

that night he led Reddy right into Coon Castle. Nat saw it all, saw the pack come up ten minutes later and watched them leave, confounded. Neither fox nor coon had ever forgotten, both having brains that were almost the equal of man's. . . .

A good many people have laughed when I told them this (Uncle Luce would explain at this point, turning a gentle, almost pleading smile on his listeners). Maybe you're laughing, too! But I believed it. I believe it still. It's one of the things I like to remember best down the years.

Old Nat died the following year. He wasn't missed by many men, I guess, but everywhere in the beauti-

ful woods he'd been a part of, the earth and trees and many a wild thing were lonesome for the departed one. And lonelier than any was I. But soon after that I was sent away to city school. Yes, my family had its way with me, as families usually do. I'm rather glad they had now. I've carried on the name as they always wanted me to.

But I like to remember that I could have been a really great hunter and woodsman, like old Nat, instead of a small-town lawyer, if I'd held out. I had it in me. I was a first in that field. It does me good to think about that (Uncle Luce would end with a smile).



"Thanks for everything, Mother"

The young bride with the gleaming ring and the shining eyes knows how much she owes to her parents . . . how much she owes to her mother's care and guidance that has trained and helped her through the years up to the most important day in her life.

Yes, the Canadian woman whose good influence is reflected in the sound character of her children may well be proud of the job she is doing. For, as the "heart of her home", she is setting a good example, and training her children in sound thinking, straight dealing and good citizenship . . . qualities that, through her children and her children's children, will benefit Canada both now and in the future.

The influence of the Canadian woman also extends to the food business where her good buying standards are a challenge to every manufacturer. That is why Weston's are proud that Weston's Bread, Biscuits, Cakes, Candies and other food products have been such consistent favorites with Canadian women for over 65 years.

Always buy the best—buy Weston's



GEORGE WESTON LIMITED...CANADA

The Countrywoman

THROUGH the eyes of an interesting visitor, we had the opportunity last month to gain further insight into the way Canadian women can and are tackling consumer problems. Mrs. W. R. Walton, Jr., of Oakville, Ontario, visited Winnipeg during the last week of May and spoke at a number of meetings and made a radio broadcast. She is now president of the Canadian Association of Consumers, which was launched in 1947 at a meeting of representatives of 56 national women's organizations.

She was formerly Dorothy McKenzie of Swift Current. She received her B.A. and M.A. degrees in Economics at the University of Saskatchewan. She took a leading place in athletics, winning the first Canadian women's championship in tennis and also the first Canadian women's championship in badminton. During the war years, she served in a voluntary capacity as chairman of the speakers' panel for the Wartime Prices and Trade Board. She has been active in Imperial Daughters of the Empire circles and is now a national vice-president and chairman of H.M. Queen Mary's Carpet for Canada Fund of the I.O.D.E. Incidentally, the funds raised through the tour of 60 cities on this continent, now amount to some \$87,000. It is hoped when the purchase bid of \$100,000 is reached to have the Royal carpet hung in the National Gallery at Ottawa.

THE text of Mrs. Walton's message in her various talks was: It is the individual who counts in work such as the C.A.C. is trying to do. Each woman must gather her own experience in buying, weigh facts and express her opinion. Passing resolutions by organizations is helpful but not sufficient. It is necessary to carry the viewpoint of women back to a community, to your retailer and to your provincial government. We should not ask "What are they doing?" about some complaint such as proper marking of packaged goods or other problem, but rather "What have I done about it?"

"The C.A.C. provides a channel through which women may recount experience in buying, register complaints and take action. There is a growing awareness at high levels of the importance of consumer reaction. Manufacturers and government officials will listen to presentations carefully prepared with evidence of facts gathered. Our work must reflect the confidence now shown in us, who speak for the women of Canada.

"Some complaints made by women are taken up directly with manufacturers. For example the complaint was made that measuring spoons should have longer handles; that the short-handled spoons were awkward. Result, the manufacturers turned out long-handled measuring spoons. Complaints have been made regarding the lack of marking packages of soap and detergents with the weight of contents. One manufacturer in Canada does mark one, two and three-pound weight on his packaged product. Others will have to follow suit if women persist in making this demand. It is difficult to judge and compare value when packages are odd sizes such as two and one-quarter, seven, nine and 11 ounces. Women are now asking for the elimination of odd-size packages. And they are asking for better sizing of garments according to body measurements."

They have protested the

A visitor and an annual meeting serve to reveal something of the story of how Canadian women are finding their way and plans in dealing with problems in consumer buying

by AMY J. ROE

marking of grades of canned fruits and vegetables simply as "fancy," "choice" and "standard," asking that Grades 1, 2 and 3 be used, but manufacturers have pointed out that 3rd grades would not sell, so the result may be that there will be "fancy" and then Grades 1 and 2. But this change will not come unless women insist on it. A survey of some 14,000 women showed a very high percentage wanted canned fruit and vegetables in 20-ounce tins, whereas only the 15-ounce tins are offered for sale. Manufacturers doubted the findings and made a survey of their own and to their surprise found that the percentage favoring the larger tins corresponded almost exactly with the C.A.C. survey. The complaint has been made that with present markings and grades, the information given does convey to the trade its meaning but the average woman buyer is at a loss to understand it. Women must insist on better informative labelling.

If women have ideas concerning better equipment, such as stoves with higher ovens, toasters which can be cleaned easier or any other matter, they should take it up with their provincial branch of C.A.C. which works through the national C.A.C., which in turn refers the matter to the National Industrial Design Committee, Ottawa.

Mrs. Walton pointed out that the C.A.C. had not pursued a policy of rollback of prices. She paid a compliment to the study made by the Milk Committee of the Manitoba Branch under the chairmanship of Miss Avis Clark, saying that it had set a pattern for fact finding, careful screening and sound judgment. The brief prepared and submitted to the select standing committee on agriculture of the Manitoba government and the resulting legislation had been a matter of great interest in Ontario.

Developing the idea of individual responsibility in consumer buying, Mrs. Walton suggested that members hold "beef teas," at which they might indulge in discussion of "beefs" about buying or the quality of goods purchased. She mentioned in particular the making of belts for dresses which had a lining which did not stand up to washing or

dry cleaning. Retailers are aware of these faults and when a purchaser brings back such a belt, the responsible retailer will report to the manufacturer and get a refund.

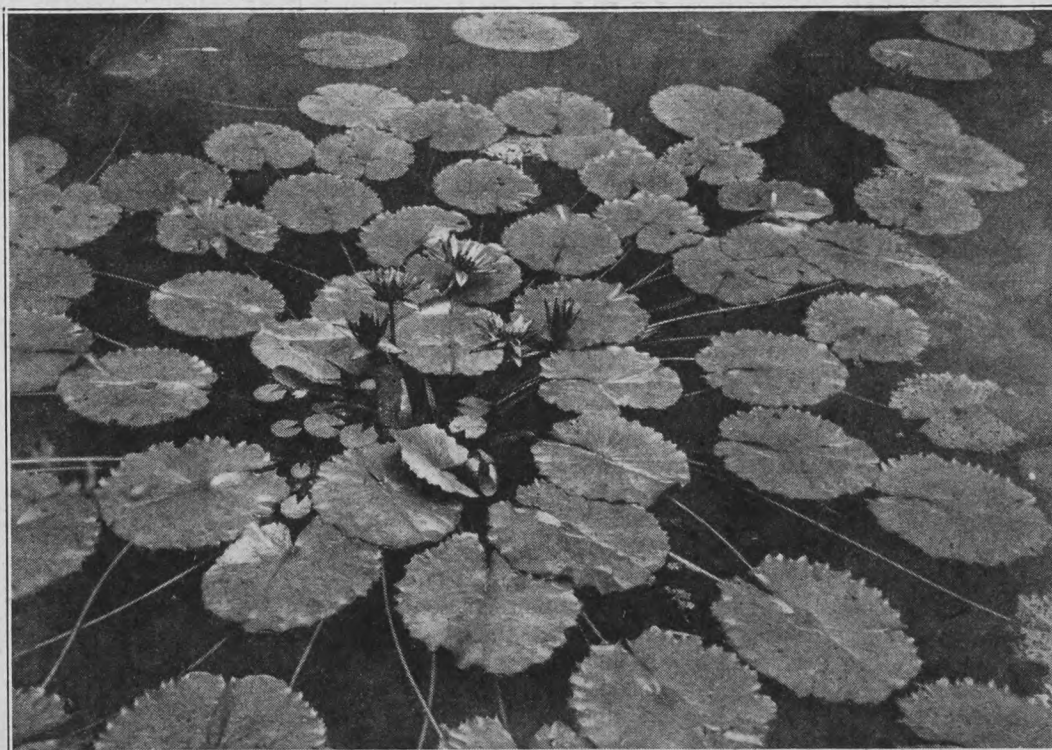
MRS. C. K. NEWCOMBE, president of the Manitoba Branch of C.A.C., outlined the progress made during the past year at the annual meeting held during Mrs. Walton's visit to Winnipeg. It had been a year of enlarged contacts. There had been new groups in new communities although the membership of 753 was disappointing. Two members of the board had been included in a delegation from the Retail Merchants Association and the Chamber of Commerce to protest to the Manitoba government the possibility of the imposition of an indirect sales tax at the provincial level, if all the provinces were unanimous in requesting the government of Canada to so amend the B.N.A. Act. The Attorney-General had given the delegation assurance that it was not the intention of Manitoba government at the present time to impose such a tax, even if the power should be granted.

The Manitoba Branch is fortunate in having keen and alert committees, whose members give generously of their time and talents voluntarily. Mrs. E. J. Stansfield (Margaret Speechly) outlined the work of the program committee which had been set up for the purpose of preparing programs of interest to consumers in towns, cities and rural areas of the province, listing of bulletins, films and other information to which groups could refer. Projects chosen and set up for discussion groups dealt with: better buying of shoes, cost of mixes, both commercial and homemade, and with points in the buying and care of freezing units. Another on soaps and detergents is in the course of preparation and will be available shortly.

Visits had been made, upon the invitation of the Garmentmakers' Association to factories in the city making women's wear and sportswear of various types for all ages. A query from Portage la Prairie C.A.C. group regarding the price and quality of flour made from 1950 wheat, which had a high percentage of low grades, led off on an interesting trail of information as to bread-making problems which are likely to last for a year or more.

The study on milk done by the committee under the chairmanship of Miss Avis Clark is a story by itself, which must wait later telling. Miss Clark concluded her report with a significant statement: "Consumers organized for the sole purpose of furthering consumers' interests have been effective in influencing government policy.

There are no women in our provincial legislature. Yet women in a united body brought about legislation, the core of which is an idea conceived and advocated by them. We have been told that is practically our idea. In a sense it may be. But it must be remembered that no government would adopt an idea merely to please the multitude. It first must believe in it, itself. That is our victory—that we were able after concentrated study to devise a new plan which the legislature accepted almost unanimously. Is this the way Canadian women will take their place in molding Canadian policy? Not by public office but by a united public opinion, expressed through one medium, which through its mass of individual members represents that intangible but powerful weapon—public opinion."



Summer's beautiful design worked out in water lily leaves.

We set out on a westward journey, following the trail of the pioneers on the prairies, recalling their story and marvelling anew the courage and endurance of their womenfolk

by OLIVE KNOX

HERITAGE of COURAGE

WOMEN not interested in the pioneering of their country! Nonsense! Our grandmothers and great grandmothers were the wives of the early pioneers—and we do not forget them. They were the women who paddled canoes, drove covered wagons, and gave birth to babies along the way. They lived in sod-roofed log cabins. They stood shoulder to shoulder with their men, many a time with a gun in their hands.

These were the women who in ruffles and flounces bequeathed a heritage of courage to their daughters and granddaughters, who donned uniforms and served in Canada's army, navy and air force.

It was the middle of July last summer when I put on slacks, packed shorts, sun-tan oil and mosquito netting and set out with my husband, Harold, to follow their trail into the setting sun.

As we left the Red River and motored along the Assiniboine, three women came to my mind. Netnokwa, Catherine Schubert and Sara Riel.

Netnokwa had paddled to the Red River in 1795 with her Indian son, Wabegonabiew, and her adopted son, John Tanner. John had been kidnapped in Ohio by the Shawnees and sold to Netnokwa for tobacco and blankets. On the way to the Red River to join her husband's people, her husband died. But Netnokwa carried out his wishes to bring his sons to the "buffalo" country and make them great hunters. John was the first white boy on the prairie. I recalled their first day on the Assiniboine, when, with a band of Ojibways, they stopped to camp. In my mind I saw John's first sight of buffalo and felt his thrill of the hunt. I heard Netnokwa in her tent singing to her Manitou to send her food to keep her family alive in this new country.

We passed a wagon, its large wheels rolling toward a red elevator, sentinel of the prairie. I visioned the Red River carts of 1862 blazing a trail toward the Cariboo and gold. Catherine Schubert with her children, Mary, Jane, Augustus and

James, accompanying them travelled so. Fear of the Indians rode with them. Each night they arranged their camp in the form of a triangle with carts placed in rows on each side and the oxen and horses, and one milk cow tethered inside. After the tents were pitched six men stood guard during the night, and wakened the party by two-thirty.

"Every man to his ox," they shouted.

CATHERINE was a plucky Irish girl and did her share, cooked meals over campfires, and joined in the singing to the music of a violin. I wondered what her thoughts had been or if she had lain awake trembling as the sentinels moved among the tents with moccasined tread.

"There's the village of St. Francois Xavier," Harold said. I looked at the church, and my thoughts turned to Sara Riel, Sister Marguerite Marie, who with a party of nuns had left the Red River in the summer of 1872 to spread Christianity among the Indians at Ile à la Crosse. Here at St. Francois Xavier they had spent a night. Here her brother, Louis Riel, had ridden at the risk of his life from St. Joseph, across the border, to say farewell.

I could see them standing on the river bank; she in her Sister of Charity habit; he, dressed in buck-



Olive Knox and Pierre Lepine standing at the cairn which marks the old site of Fort Ellice.

skins, towering above her while needles of lightning patterned the sky. I could hear her soft voice begging him to have patience and faith to bear his great disappointment at having to flee to await in idleness the "promised" amnesty, when he wanted to be busy looking after his people—to fulfill his destiny.

Netnokwa, Catherine and Sara followed me to Fort la Reine, where Portage la Prairie now stands. Here Netnokwa had wintered in a birch-bark lodge built by her sons. And just beyond both Catherine and Sara spent a Sunday in camp, setting part of the day aside for worship and prayer.

Our car rolled on, passing fields of waving grain that eased into rolling sand hills. To the south was Edrans. With my eyes I saw the pleasant landscape of today—but with my mind, I saw Mrs. R. Sharp arriving there on a wagonload of household effects, driving slowly through a poplar-lined trail, fording shallow streams, and watching with bright eyes the surveyor stakes tracing a path for the railway. In a letter from my files I found an account of the cyclone of 1901 and the fire of 1903, which burned cordwood, homes and men.

"When our last hope was gone the C.P.R. backed a train in to take the people out. All the women and children were on the train watching the fire approach the town. Rev. J. Mackie Niven was there too. Many thought they owed their safety to his prayers as the wind changed and the town was saved." Back to their homes they went picking saskatoons, black currants, raspberries, strawberries and cranberries to fill their fruit cupboards.

"Indian teepees were to be seen on the ridges during the berry picking and deer hunting season," her letter said. "And we took our grain to a grist mill to have it ground. . . ."

"Edrans had a checkered history, its good and bad times. It has had its suicides, murders, elopements, police courts, and its cemetery is filling up with men and women who have made their contribution to its history."

We drove on to Brandon, and

then turned north to Hamiota. There we stopped to celebrate my parents' Golden Wedding, while they were on holidays from their church in Lewvan, Saskatchewan. I was still wearing my spectacles of the past. I did not see them as parents of grown-up children, but as a young couple leaving Ontario to preach on a mission field at Sylvan Lake, Alberta. I saw dad, lured by the spirit of his farmer ancestors, taking up a homestead, clearing the land, preaching on Sunday, and studying at night to finish his course in Theology. I saw their log cabin surrounded by forest, the lake at their door fished by Indians and settlers. I saw mother barring the door on the nights dad was away on his circuit; shivering at the howl of wolves, the heavy pad of feet that might be bears. And what if dad did shoot our cow mistaking it for a bear in the dark just before dawn! Any pioneer could have made that mistake, and it was a good shot. "Got it right through the forehead," he told us.

Our next stop was at a modern farm. But what a farm! Our petticoat pioneers would have declared it a dream; electricity, refrigerators, deep-freeze, combine, tractors, cars.



Monday found us motoring past Shoal Lake. Netnokwa had passed it on her way to Clear Lake where she spent several winters. Sara and Catherine camped here, but it was through the eyes of Emma Brydon that I pictured its past. Little Charlie Bry-

don swinging along beside a covered wagon on his little crutch, singing, "Over the hills and far away." Henry Chambers finding that the campfire had singed off the legs of his pants during the night, and the laughter caused by his knee-length trousers; pit saws, making logs into boards for their homes; Charles Findlay building his home on a hill, calling it Crocus Hill, because his first sight of it was a carpet of golden-hearted crocuses; stools made from trunks of trees; covering of schooners used for curtains; Sioux Ben, six-foot-four, who rode woman-fashion to keep his feet from dragging; wheat ground into flour between two stones; the Findlay brothers bringing two spruce to plant on Crocus Hill (now serving as headstones for their graves); ox-trains, hunters, gold prospectors, and scarlet-coated police, the only traffic going past their doors. Phrases that would make a book!

Mrs. Brydon's letter tells about a prairie fire.

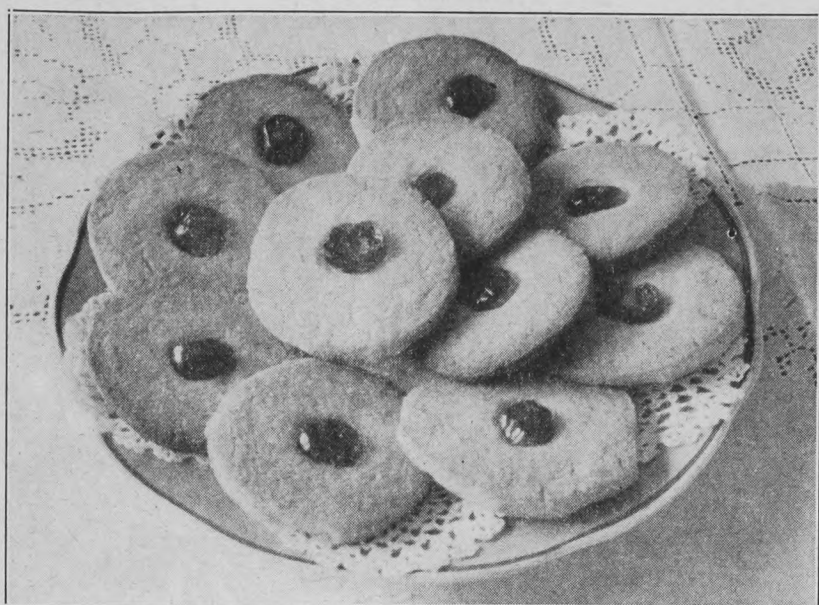
"Owing to a large bluff it had been difficult to plow an adequate fire guard, and to backfire in the face of the gale blowing the fire toward us was too dangerous. When the fire was almost upon us we gathered barrels, pails, kettles and filled them with water. We soaked grain sacks and went out to attack the fire, beating it down. The hot flames made us retreat. We prayed that the green poplars would check its mad rush. But the greedy flames leaped



Cookie Jar Fillers

Suggestions to make cookie baking time more enjoyable

by EFFIE BUTLER



Gold Coin cookies make a tempting tea-time dainty when decorated with glazed cherry rings.

ANY time is cookie time. When the men want a mid-morning snack, when the neighbors drop in for an afternoon chat, or when the children come home from school, serve them cookies.

The right tools can make your cookie baking time more enjoyable. Two baking sheets, each about two inches smaller than the oven, so you can be filling one while the cookies on the other are baking, will save time and fuel. A broad spatula is best for lifting tender dainties from the pan. Fancy cookie cutters are inexpensive, will add greater variety to your cookie assortment, and last a lifetime.

Oven temperatures specified in the recipe or the temperature found best after you have made a trial panful should be followed with care. Over-baking makes dry cookies. When done, allow cookies to cool on a wire rack in a single layer. Store in airtight boxes between layers of wax paper for best results.

Gold Coin Cookies

- | | |
|-----------------------------|--------------------------|
| 1 c. butter or margarine | 1 tsp. vanilla or almond |
| 1 c. sugar (icing or brown) | flavoring |
| 2½ c. flour | ½ tsp. salt |

Cream butter thoroughly. Add sugar gradually, blending well between each addition. Add flavoring. Sift flour, then measure. Add salt and sift once more. Stir into the butter mixture. Mix well, using your hands. Press and shape mixture into long, smooth rolls about two inches in diameter. Wrap each in wax paper and chill in refrigerator overnight or for several hours until stiff. Cut in thin slices, place slices slightly apart on ungreased cookie sheet. Bake in moderately hot oven 400-425° F., for eight to ten minutes until golden brown. Makes about six dozen cookies.

Peanut Butter Ribbons

- | | |
|--------------------------|---------------------------------|
| ¾ c. brown sugar | 4 to 6 oz. semi-sweet chocolate |
| ½ c. butter or margarine | 1 c. rolled oats |
| 1 egg | ½ tsp. baking soda |
| ½ c. peanut butter | ½ tsp. salt |
| 1 c. flour | ¼ c. water |

Cream butter and sugar, add beaten egg, blend well. Add peanut butter and water and mix well. Add sifted flour, soda and salt. Stir and blend until

smooth. Blend in rolled oats. Spread half the dough in a greased pan about 11 by seven inches in size. Cover with the melted chocolate. Roll the remaining dough between two sheets of wax paper. Remove paper and place dough covering over the chocolate filling. Bake in moderate oven, 350° F., 30 to 35 minutes. Cool and cut in finger bars. Makes about 24 to 30 bars.

Marshmallow Brownies

- | | |
|---------------------------|---------------------|
| 1 egg | 20 marshmallows |
| 1 c. icing sugar | 2 squares chocolate |
| ½ c. crushed walnut meats | ½ tsp. vanilla |

Beat egg and add icing sugar and vanilla. Add walnuts. Cut marshmallows into quarters and add to mixture. Melt the chocolate squares over boiling water and add to mixture, blending well until all is coated with chocolate. Drop by spoonfuls on wax paper. Set in refrigerator to chill and dry. These dainties do not require cooking and are ready for use when thoroughly chilled.

Cookie Sprites

- | | |
|----------------------------|------------------------|
| 1 c. butter or margarine | ¾ tsp. baking powder |
| ¾ c. fine granulated sugar | ½ tsp. salt |
| 2 eggs | 2 tsp. lemon flavoring |
| 2½ c. sifted flour | |

Measure into sifter, flour, baking powder and salt. Sift twice together. Cream butter until soft. Gradually blend in sugar and cream well. Add beaten egg. Stir in lemon flavoring. Add flour mixture about one-third at a time, combining well after each addition. Pack dough into cookie press and press onto greased cookie sheet, using favorite design. Bake in moderate oven, 350° F., ten to 12 minutes. Makes about seven dozen cookies.

Prune Cream Cookies

- | | |
|-------------------------------|----------------------|
| 1½ c. cooked prunes (drained) | 1 c. rolled oats |
| 1½ c. brown sugar | 3 c. flour |
| ¼ c. butter or shortening | 4 tsp. baking powder |
| 2 eggs | ½ tsp. soda |
| 1 c. sour cream | 1 tsp. salt |
| | ½ tsp. mace |

Drain prunes, remove pits and cut prunes into pieces. Cream sugar and butter, add beaten eggs and sour cream. Stir well. Sift flour, salt, baking powder, soda and mace. Add rolled oats. Combine dry ingredients with the first mixture. Add prune pieces and beat thoroughly. Drop by small spoonfuls onto greased cookie sheet and bake in a hot oven. 400° F., ten to 12 minutes. Makes three to four dozen cookies.

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"Where Bigger and Better Blankets are Made"



Really grown up she feels now. It's the first time her mother has asked the daughter's advice about anything as important and personal as *monthly sanitary protection*. "You seem so gay and unconcerned on those days. What is the secret?" her mother had said. The girl's answer contained just one word—"Tampax."

Doctor-invented Tampax is not designed for any class or group, but for women generally. Its *internally absorbent* principle is greatly appreciated among college students, secretaries, nurses, housewives and others who must move about, mix with shopping crowds, etc. . . . Tampax consists of pure surgical cotton contained in slender applicators for easy insertion. No belts, no pins—no odor or chafing.

Remember, you can't feel the Tampax while wearing it. No bulges or edge-lines under summer dresses or swim suits. Quick to change—easy to dispose of . . . Sold at drug and notion counters in 3 absorbency-sizes: Regular, Super, Junior. Month's supply goes into your purse. Canadian Tampax Corporation Limited, Brampton, Ont.



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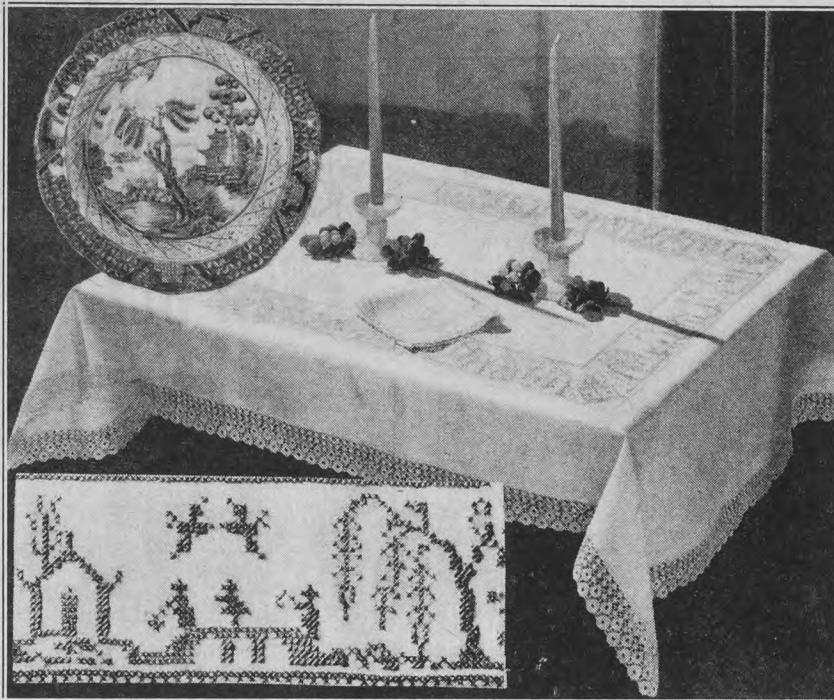
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Willow Luncheon Set

Gay and bright needlework ideas for summer
by FLORENCE WEBB



Design No. 853.

The Blue Willow design is a most popular motif and particularly interesting when worked in cross stitch embroidery. We copied the design from an authentic Old Willow plate and worked it in three shades of delft

blue. The tablecloth is 36 by 54 inches; serviettes are 12 inches square. The set is stamped on best-quality cream embroidery linen and comes complete with working instructions. Design No. 853. Price complete, postage paid, \$4.00.

Candlewick Dish Mats



Design No. C-245.

Make them of strands of cotton string; or use the new simulated straw crochet threads or use candlewick. Either as dish or place mats these pretty mats are versatile and entirely practical. Pattern includes directions for three sizes and also for oval mats for platters, etc. Pattern is No. C-245, price 25c.

Dainty Hot-Iron Transfers

Design No. T-141.

Little Dutch ladies going busily about their household tasks are the theme for this hot-iron transfer you will want to use to decorate towels, luncheon sets, aprons and children's clothes. They're dainty and colorful or may be worked all in Dutch blue



colors with yellow for the hair and pink for the features. Hot-Iron Transfer No. T-141. One sheet, including eight motifs, 25 cents. Two sheets are 40 cents.

Address orders to The Country Guide Needlework Department, Winnipeg, Man.



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TRETTED YOUR FLOORS

Inside the Washer

Items that affect the removal of soil

by MARGARET M. SPEECHLY

A GREAT deal happens inside the washer that nobody ever sees.

The family wash goes in soiled and grimy and comes out fresh and clean. Naturally, the machine plays an important part in the transformation but that is only half the story.

Getting out dirt is a complicated process and the thoroughness with which the job is done depends on making use of certain known facts week by week.

First, the water must wet the fabrics. Put a little water on cloth that is soiled and it may remain on the surface in droplets like water on a duck's back. If a detergent is added to the water, the moisture will sink in or penetrate the surface and commence working on the dirt.

Remember that a detergent is anything that cleans, either a soap or a synthetic product. In any case, a solution of water and detergent has greater penetrating power than water alone, provided the proportions are right. The removal of soil from clothing depends on having the right kind of wash-water for the job at hand.

More than that, each type of soil presents a different problem. If dirt consisted of a single substance, the job would be simple, but more often it is a mixture of several materials each requiring special treatment.

Particles of dust are no trouble as a rule, but very often are bound to fabrics by protein soil such as egg, milk, meat juices or perspiration which is hardened by heat.

Perspiration is a mixture of waste products from the skin, sometimes acid in nature, sometimes alkaline. In addition it may collect oil from the hair which complicates the problem.

This is why collars and cuffs need special attention in laundering. First, the protein part of the soil must be softened in cool water. Only then can the oily particles be removed, together with the dust they have picked up. Hot suds are needed for this, the hotter the better.

How easily this kind of dirt can be removed depends on whether it lies on the surface of the garment, or is embedded in the meshes. Wearing a light shirt more than once is poor policy because one layer of dirt is added each time, especially in hot weather when perspiration is more profuse. The friction at cuffs and collar further binds the soil to the cloth.

A well-clipped neck may not seem like a washday problem, but it reduces the amount of oil absorbed from the hair and dust collected during wear. It also lessens the friction.

WHERE soil is liable to be heavy (collars, cuffs, knees and seats of play togs) it is worth while brushing on melted soap which will penetrate the weave and assist the washer in its job of cleaning. Naturally the melted soap should not be applied while hot to protein soil.

The finished appearance of the clothes will also be influenced by the choice of the right kind of detergent for the particular piece of work. If the bulk of the wash consists of cottons and linens, there is nothing to equal

a soap product for thoroughly removing the soil. The hotter the water, the better the job will be done.

On the other hand, woollens, silks, rayons, nylon can be cleaned effectively and with amazing rapidity by a light-duty synthetic product, even when the water is hard.

No matter what your choice, the detergent and the water must be used in the right proportion to remove soil properly. Suds are a measure of cleaning power if you are using soap in any of its forms. Add just enough to produce a two-inch standing suds.

Never let the suds disappear or cleaning will stop, but do not put in so much soap that the force of the water is cut down. If you are using a synthetic product, there may be little or no foam and still cleaning will go on. Experiment until you find the right amount of any product that will do a good cleaning job. Always measure to avoid waste.

When all the conditions in the machine are exactly right, this is how the wash-water does the work of cleansing. It wets the fabric, works its way between the meshes, gets between the yarns and the soil, breaks it up into tiny particles, floats them away and holds them in suspension until the articles are rinsed.

THE action of the machine aids in the process by tossing the clothes around in the wash-water and drawing or forcing it through the meshes of the fabrics.

To do this properly, it must not be overloaded. A tightly packed machine is hampered and unable to bring the wash-water into contact with each article. Study your machine to see what size of load gives the best results.

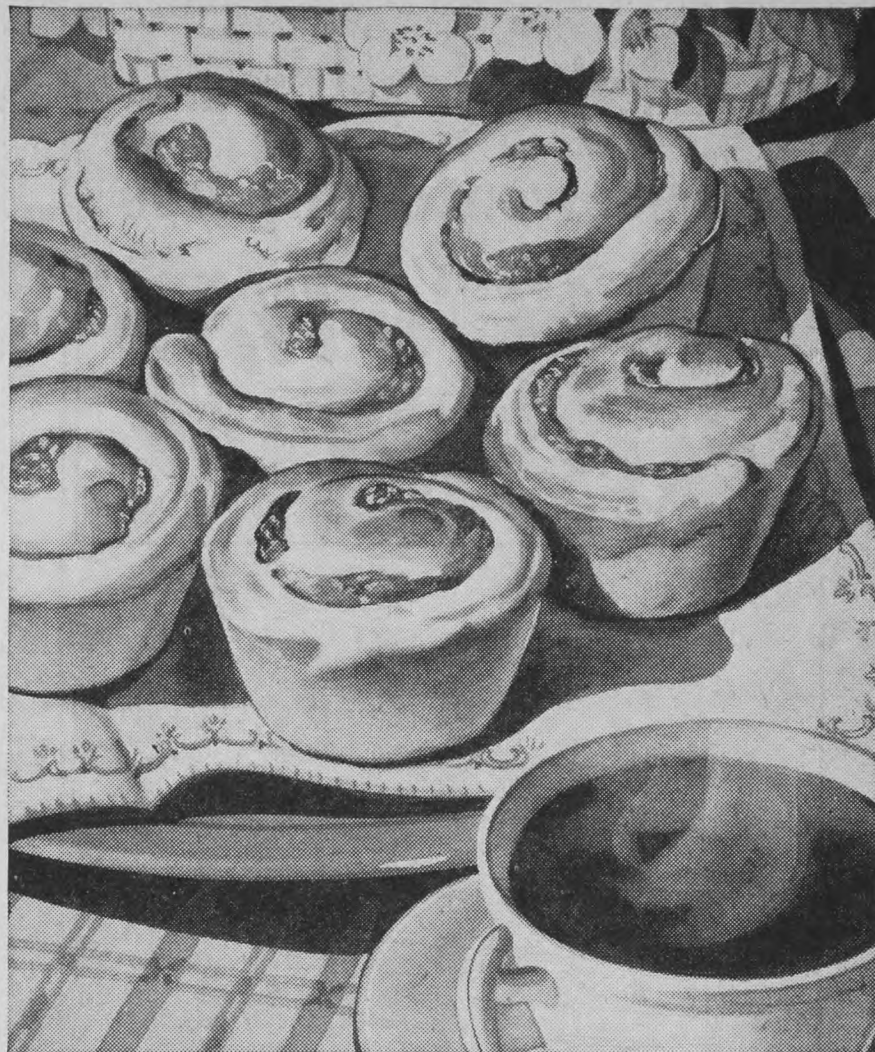
Follow the manufacturer's directions about the length of time to operate the machine. Too short a period will not get the clothes clean, but running the load too long may cause the dirt to be redeposited on the garments.

Actually, suds are only efficient up to a certain point. Once they become loaded with particles of soil, they cannot take up any more. It may be necessary to put the clothes through a second suds to get out the remaining dirt.

The fact that wash-water has picked up countless particles from the clothes emphasizes the necessity for thorough rinsing. No wringer or spinner basket can possibly remove every bit of moisture from the meshes of fabrics.

Various scientific agencies have proved that the color of unrinsed clothes compares unfavorably with the color of articles thoroughly rinsed. Further, they found that unrinsed clothes tend to scorch easily.

Give your clothes as many rinses as you can manage. One is better than none, two are better still, and the best results are secured with three. For cottons and linens and tub-fast cottons, hot water is far better than cold. Use a metal plunger for drawing the water through the meshes.



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New Dry Yeast!

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ORANGE-FILLED ROLLS

Makes 2 Dozen

Measure into large bowl

1/2 cup lukewarm water

1 teaspoon granulated sugar
and stir until sugar is dissolved.
Sprinkle with contents of

1 envelope Fleischmann's
Fast Rising Dry Yeast

Let stand 10 minutes, THEN stir well;
In the meantime, scald

3/4 cup milk

Remove from heat and stir in

1/4 cup granulated sugar

2-1/4 teaspoons salt

4-1/2 tablespoons shortening

Cool to lukewarm and add to yeast mixture; stir in

1/4 cup lukewarm water

Stir in

2-1/4 cups once-sifted bread flour
and beat until smooth; work in

2-1/4 cups more once-sifted bread flour

Turn out on lightly-floured board and knead dough lightly until smooth and elastic. Place in greased bowl, brush top with melted butter or shortening. Cover and set dough in warm place, free from draught. Let rise until doubled in bulk. While dough is rising, prepare

ORANGE FILLING

Combine in a saucepan

2-1/2 tablespoons corn starch

1/2 cup granulated sugar

Gradually blend in

1/3 cup cold water

1/3 cup orange juice

1-1/2 tablespoons lemon juice
and add

1 tablespoon grated orange
rind

1 teaspoon grated lemon rind

Bring to the boil, stirring constantly; boil gently, stirring constantly, until smoothly thickened; cool.

Punch down dough; form into a smooth ball. Roll into an oblong 1/4-inch thick and 26 inches long; loosen dough from board. Spread with cooled orange filling.

Beginning at a long edge, roll up loosely, like a jelly roll. Cut into 1-inch slices. Place in greased muffin pans. Grease tops. Cover and let rise until doubled in bulk. Bake in moderate oven, 350°, about 25 min. Serve hot, with butter or margarine.



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Nails and Their Care

*Manicure and pedicure go hand in hand
for comfort and over-all beauty picture*

by LORETTA MILLER

A MANICURE and pedicure go hand in hand! Keeping fingernails and toenails trimmed and cuticle well groomed is a summertime "must" for good looks as well as comfort. It may not be necessary to do the toenails each time the fingernails are done, but it will save time if both are done at the same time. The fingernails may require weekly attention while the pedicure may be done only every two or three weeks.

Before getting into the steps of the manicure, it's well to remove all polish from the nails and to shape them. Use a good nail file or, if your nails are thin and inclined to break or scale off, use an emery board. Then rinse off all polish remover, scrub the fingertips with a lathered brush and smooth a goodly amount of cuticle oil or cream around the nails. Let this remain on while you do the first steps of the pedicure.

PROCEED with the toenails just as you have with the fingernails. Shape them with a sharp file or new emery board, then use an orangewood stick for smoothing cuticle oil or cream around each nail. Be sure that the cuticle grooming aid reaches close at the sides of the toenails. Let this remain on while you again return your attention to your fingertips.

Choose the shape and length for your nails most suited to the shape of your hands, making sure that the length is practical for you. If you are as busy as the proverbial bee and use your hands a lot, it is well to keep the nails a trifle shorter than the girl who spends her time leisurely. Keeping fingernails filed close at the sides will tend to give the fingertips a tapering look. And keeping the nails nicely rounded will give the fingers an illusion of slenderness and length.

Whether a metal file or emery board is used for shaping the nails, the finely sanded side of the emery board should be used for smoothing over the nail edges. This will remove all roughness.

Dip an orangewood stick into cuticle remover and smooth it over and over the cuticle. Then use the sharper end of the orangewood stick or, if you are careful, use a metal cuticle pusher. Be careful not to press too firmly around the nail base or it may become bruised. (This will sooner or later be evidenced by small white spots over the nails.) Apply the liquid cuticle remover to all of the nails of one hand. Now direct your attention to one finger, using either cuticle scissors or clippers for trimming away excess cuticle. Before doing any cuticle trimming, however, be sure that it has first been loosened with the aid of an orangewood stick. It is wiser to trim just a little at a time than to cut too deeply, so be sure to follow this step carefully. (If an accident occurs, touch up the too-closely-cut cuticle with a few drops of peroxide at once.)

Excess cuticle which grows fast to the nails and gives them an un-

groomed appearance should be removed. If this step has never been included in your manicure routine, it is better not to begin now. Once the cuticle has been cut, it seems necessary to continue, though this step can be completely sidestepped by correct grooming. Use the squared end of the orangewood stick after washing and drying the hands and while the cuticle is soft and pliable. Press back the cuticle around the base and sides of each nail. If an orangewood stick is not handy, wrap the towel over a fingertip and use it for grooming each fingertip. Remove only excess cuticle, or an end which is likely to cause a hangnail.

When cuticle have been properly cared for, make another application of cuticle oil or cream. Then direct your attention to your pedicure.

Use an orangewood stick and cuticle remover for grooming cuticle of toenails. It may not be necessary to use clippers or scissors for removing excess cuticle from toenails. If this step becomes necessary, however, be very careful not to trim too deeply. Of course contrary to giving the fingertips a tapering appearance, toenails should be filed almost straight across, with only the sides slightly rounded. This will help prevent ingrowing nails. Keep the nail edges smooth with an emery board in order not to snag your hose.

Whether or not a polish is used on the toenails is certainly a very personal matter. If, however, it is used, the application should be made right after scrubbing the toes and drying them well. After applying the polish, use your finger for removing polish from the extreme tip of the nail. This removal will prevent the chipping and peeling off of the polish. Let the polish dry thoroughly before making a second application. Now turn your attention back to your fingertips.

AFTER scrubbing your fingertips and drying them thoroughly, make an application either of nail polish or nail polish base. The base is a clear substance that helps hold the polish. Let this or the polish dry before making the next application. Let the polish dry and harden before touching it.

The method of application is up to the individual. Whether it is applied over the entire nail, or left off of the half moon and tip depends entirely upon one's likes and dislikes. It does seem to make the fingers appear longer and more tapering if the half moon and tip are unpolished, and if the colorful enamel is used only over the real body of the nail.

If open-toed sandals are worn during the summer months, you may like the effect of matching toenails to fingertips. You can do this whether no polish is used, a colorless polish, or even one with a lot of color. Well-groomed fingernails and toenails certainly go hand in hand to complete the over-all beauty picture.

Heritage of Courage

Continued from page 55

"Yes," said Pierre, a far away look in his eyes, "I can remember the ox trains, and the steamers." He looked at the meadow stretching toward the bluffs, and pointed to the left. "There's the old graveyard," he said. Quietly we turned away and descended the hill.

A meadowlark trilled again and I was hearing Catherine's children squealing with joy as they chased each other among the summer flowers, bringing back bouquets to their mother as she prepared a mid-day meal. I was seeing Sara, orange-red tiger lilies in her hands, looking up at the sky and thanking God for his care, and praying for guidance to help her do her part in bringing Christ into the hearts of the Indians at Ile à la Crosse.

Reluctantly we left the meadow and turned back to the highway, but still following Catherine and Sara's trail to Watrous, and on to Lake Manitou. This was to be our first night to camp out, so we drove up the hill overlooking the lake, its still water mirroring the west bank and a sliver of a moon. Harold rolled out his sleeping bag. I made up a berth in the back seat. We breakfasted on fruit juice, cinnamon buns and coffee, then started for Saskatoon.

Here on the banks of the South Saskatchewan, among a scattering of log cabins, Nurse Miller, from Winnipeg's General Hospital, arrived in 1885 to take care of the wounded coming from the battlefields—not in ambulances or planes, but in hammocks of canvas and cowhide slung from the side of wagons. Here this "Lady of the Lamp," with help from the pioneer women, dressed wounds, comforted the dying and wrote letters home to their wives and mothers.

Here we, 65 years later, in a beautiful modern city, spent the afternoon in the University library and archives. Here we learned the best way to see the battlefields of the 1885 Rebellion, and set off the following morning to Fish Creek. We passed dark-skinned Métis, fair-skinned Ukrainians, sun-tanned Canadians and Scandinavians. I couldn't help but recall Louis Riel's dream; that perhaps not in his day but in his son's and his son's son's, the North-West would be peopled by many races, and Roman Catholics and Protestants would shake hands in friendship.

WE finally found the cairn commemorating the Fish Creek battle in which Gabriel Dumont, leading the Métis, defeated General Middleton's army. We took the path leading down through a deep ravine and came up the other side. There in a meadow, surrounded by a fence, was the cairn

and a gravestone. Gunners C. H. D'Manolly, W. Cook and S. Arnsworth were buried here.

Here young soldiers had been cared for until they could be sent back to Mrs. Hunter's sod shack, ten miles from Saskatoon, for first aid, then on to Nurse Miller. From here too, the Métis wounded were taken back to Batoche to be nursed by their women.

We followed the river road toward Batoche. Suddenly Harold braked the car. "There's Middleton's office," he said.

At the side of the road I saw a mud-plastered house with a porch. A man and a little boy came to meet us. "Yes, this is where the General stayed," he said, and after further questioning: "Sure, you can still see their trenches. Joe, here, will show you."

Brown-eyed, nine-year-old Joe led us a merry chase as his young legs sped over the ground, back of the barn, then across the field, through brush and wire fences, in and out of poplar bluffs, and back to the house. My slacks were stuck with spear grass, and I stumbled over the uneven ground. But Joe wasn't finished. Across the road we must go. He opened a gate, motioned us through, fastened it and led us down to the river bank. There he pointed out the grave of Gunner Phillips.

We drove on to St. Antoine de Padoue, where the Métis had formed

their council for the 1885 Rebellion. In the upper window of the house, covered by a piece of glass, is the bullet hole made from General Middleton's gun. Before the church is a cairn. In the graveyard to the right we could see a fenced-in plot filled with crosses—the graves of the Sioux and Métis killed in the Battle of Batoche.

In the valley where the village of Batoche had been, not one house remained; only a hay meadow where Louis Riel's headquarters had been, and where his young wife, only 25 years old, had left the safety of Montana with her two children, to be with Louis when not only the Métis but the whites begged him to come to Saskatchewan and help them get their rights. Here too, she and Gabriel Dumont's wife cooked and baked, and cared for the men; and here a young Métis mother with a baby in her arms was shot down.

We crossed the river by ferry and took the road to Duck Lake. We met truckloads of Métis, men, women and children who had come from as far as Green Lake and Ile à la Crosse on their yearly pilgrimage in memory of the day that Gabriel Dumont and Louis Riel had struck the first blow as the defenders of their race.

We left them and went on to Prince Albert, now a pretty city on the North Saskatchewan. I wondered who had been the first petticoat pioneers

BUCK UP with NABOB!



Under Summer Sun

No. 282—A basque-bodice bathing suit with cuff and waistline bow of dazzling white pique. It has a circular dancer's skirt for freedom. Sizes 12, 14, 16, 18 and 20 years; 32, 34, 36 and 38-inch bust. Size 16 (34) requires 3 yards 35-inch material. Price 25 cents.

No. 678—Peasant-style blouse and skirt that both city and country girls will wear often this summer. Sizes 12, 14, 16, 18 and 20 years; 32, 34, 36, 38 and 40-inch bust. Size 16 (34) requires for blouse 1½ yards 35-inch material and 1¼ yards 3-inch lace; for skirt 3½ yards 39-inch material, 4 yards edging. Price 25 cents.



No. 266—A no-midriff sunsuit consisting of bra and shorts with bolero and circular skirt to don for cooler evenings. Striking in co-ordinated cottons. Sizes 12, 14, 16, 18 and 20 years; 32, 34, 36, 38 and 40-inch bust. Size 16 (34) requires 2½ yards 35-inch material for bra and shorts; 2½ yards for skirt and 1½ yards for bolero. Price 25 cents.

No. 877 — There is grace and charm for the fuller figure in this printed sheer dress. Front buttoned and gathered at the neck and waistline. Sizes 14, 16, 18 and 20 years; 32, 34, 36, 38, 40, 42, 44 and 46-inch bust. Size 18 (36) requires 4½ yards 35-inch fabric. Price 35 cents.

No. 725—Pretty casual for town and country wear. Easy-fitting bodice combines with a full skirt for a fashion-right look. Especially attractive in a candy-stripe cotton. Square neckline also included in pattern. Sizes 10, 12, 14, 16, 18 and 20 years; 32, 34, 36 and 38-inch bust. Size 16 (34) requires 4½ yards 35-inch material. Price 25 cents.

No. 611—Fitted, sunback dress has a bolero to don for when the sun goes down. Handy hip pockets and sash make it a favorite. Sizes 12, 14, 16, 18 and 20 years; 32, 34, 36 and 38-inch bust. Size 16 (34) requires 3¼ yards 35-inch material for dress; 1¼ yards for bolero. Price 25 cents.

No. 866—A three-piece sundress made up of halter, skirt and bolero. Perfect for partying or summer days outdoors. Sizes 10, 12, 14, 16, 18 and 20 years; 32, 34, 36 and 38-inch bust. Size 16 (34) requires 3½ yards 35-inch material for halter and skirt. Price 40 cents.

Hollywood Spring and Summer Style Book—contains almost 200 styles suitable for every occasion for spring and summer wear. Every pattern contains a complete sewing chart. Price of book 35 cents.

Be sure to state correct size and number of pattern wanted when ordering. Write name and address clearly. Note price of each pattern. Address orders to The Country Guide Patterns, Winnipeg, Man.

HOLLYWOOD
PATTERNS

there. I soon found out. Overlooking the river near the car and railway bridge stood a cairn, its plaque bearing these words:

"At or near this spot in August, 1866, 50 days after leaving The Lord Selkirk Colony on the Red River, the founders of Prince Albert made their first camp within what is now the city limits. The members of the party were Rev. James and Mrs. Nisbet, Mary Nisbet, John McKay, Mrs. McKay, Mary McKay, C'tina McKay, George Flett, Mrs. Flett, William McBeth, Alex Polson."

And beside it is a plaque saying that Queen Elizabeth and King George VI had stood there in June, 1939. I wondered if the beautiful Queen pictured those women in crinoline and sunbonnets, their skin burnt, their hands roughened, as she looked at the river; or if she could imagine the trials of a 50-day trip from the Red River.

That same evening we set off for Lac la Ronge, 176 miles northeast of Prince Albert, with the intention of camping by a lake for the night. The paved highway led through the beautiful park, its lakes lined with summer cottages, then we were on a good gravelled road. The sun was sinking beyond Montreal Lake when we stopped at the side of the road to camp.

But alas and alack! We had failed to take mosquitoes into our reckoning. They descended in stinging hordes. They found crannies and entered the car in spite of the netting we hung. We swatted mosquitoes for the next two hours, until our faces were bruised and sleep was gone.

"We might as well drive as stay here and be eaten to death," I wailed. So we set out in the dark and didn't see a human habitation until we reached Lac la Ronge, 85 miles further on.

Lac la Ronge is a fisherman's paradise. At the north end there had been forts as far back as 1781; at the south end an Anglican mission since 1851, where missionaries came with their wives to teach, preach, plant grain and vegetables, and to build a flour mill.

In the morning we discovered we had missed the weekly plane to Ile à la Crosse by one day. Nothing daunted we returned to Prince Albert and took the road to Green Lake in the hopes of catching a truck to Ile à la Crosse. We arrived over a slippery, rain-soaked road to find we had missed the weekly mail truck by an hour.

PARKING on the banks of Green Lake we cooked our supper over a campfire, on the very spot where the old Hudson's Bay Post stood when Sara Riel spent a few days waiting while her party tried vainly to get barges to continue their trip to Ile à la Crosse. Not to waste time in her mission to teach and improve the Métis, she unpacked her books and to the dismay of the young Métis girls with her, put them to work.

And now at Green Lake, where she was the first teacher, there is a six-room school for the Métis children, where they learn not only the three "R's" but domestic science and

(Please turn to page 64)

English Smocking

A colorful and interesting craft that is particularly popular at this time of year



Design No. E-100.

Nothing is prettier for trimming summer dresses, blouses, aprons, curtains and infants' wear. English smocking is done by taking a small stitch in each "dot" in the stamped pattern. The material is then gathered and the "smocking" done by sewing in a pleat.

This Infant's Smocked Nightgown kit, Design No. E-100, includes one nightgown stamped on flannelette ready to be cut out; the embroidery floss; instructions for making and directions for smocking. It is a simple design worked in both pink and blue. Kit complete, postage paid, is \$1.35.

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manual training. Here also is a "shelter" for orphan children. Here other women carry on her work of helping the Métis develop their abilities and talents.

We spent four days at Green Lake, sleeping in a tent given to us by Frank Milne who is in charge of the Hudson's Bay store. We visited the homes of the Métis, saw the mill set up in a section of burnt-out forest where they were salvaging what they could for lumber. We visited the farm worked by Métis with modern machinery, their homes overlooking the beautiful Green River.

We ate in the café and to the music of the juke box, fed by the nickels of the Métis children, talked to young men who had fought in Italy and France.

With Sara's eyes I looked at these descendants of the blood of Europeans and Indians, and felt that they had justified her belief that with education and Christianity they could do their part in building a democracy.

"Well, are you going on to Ile à la Crosse?" asked Harold.

Ashamed to admit that I did not have the stamina of our petticoat pioneers and unwilling to give up my plan of seeing Sara's grave, I hesitated. But finally the tales of the rough

road, the more than probable breakdowns of even the big trucks, and the ten or more hours that it would take to make the 100 miles, I decided that it was the better part of valor to admit my weakness. So we left Green Lake, and started home by Meadow Lake.

There we looked up William B. Cameron, author of "Blood on the Sun," a reprint of "The War Trail of Big Bear." At 88 he is still writing and chatted spiritedly of the early days. He knew Mrs. Delaney and Mrs. Gowanlock who had been captured in 1885 by the Indians after they had seen their husbands shot, and were sold to John Pritchard for horses. They were the only pioneer women that I know of being sold in western Canada.

Going toward North Battleford we crossed the old cart trail which had taken Catherine Schubert to the Cariboo. At the foothills of the Rockies their carts, oxen and horses were left behind—all but one horse. The men walked, taking turns carrying two-year-old Jimmy. Catherine rode the buckskin with two large baskets slung pannier-fashion in front of her for Mary, Jane and Augustus. But soon even the buckskin was killed for food, and sometimes walking, sometimes paddling, they went westward. At

Kamloops Catherine gave birth to her fourth child. The Indians wanted to call her Kamloops, but Catherine chose Rosa in memory of the days when they kept alive by eating rose hips.

After a night spent in a cabin on the banks of the North Saskatchewan we visited the Mounted Police Memorial on the south banks. The buildings of 1885 are still there and used as a museum of the early days. One of them a prison which held the captured Indians.

Continuing south and east we went homeward by Saskatoon and Regina—stopping at the latter only to see the spot where Louis Riel had been hung. A baby played under the trees and there is no monument to mark the spot where a man gave his life for his people.

That night we camped on the banks of the Qu'Appelle. Tomorrow we would be home. As I watched the stars stitching the sky in silver I thought of the women whose stories my trip had made real to me—Indian, Métis and English. With struggle, self-denial and pain they paid the price of turning a wilderness into civilized communities. They lie beneath the land they loved. Their visions live on. They are not forgotten.

The Cheese King of Canada

He conceived a comprehensive settlement plan for a prairie community founded on cheese production. It lacked nothing except the wisdom which comes only from experience

by NORMAN WRIGHT

MANY Canadians are familiar with the story of the mammoth cheese manufactured in Perth, Ontario, exhibited at the Chicago World's Fair in 1893, and finally taken across the Atlantic and cut up in London. It was nine feet in diameter, six feet high, and weighed 22,000 pounds and created such a stir that it is frequently recalled, as on the occasion of Dr. W. G. Blair's speech in the House at the last session.

Manufacturing and exhibiting so great a cheese was undoubtedly a project which provided a stimulus to Canada's export trade in cheese. However, in claiming that this ambitious project "was responsible for the beginning of the cheese export trade to Britain," the veteran member for Lanark overlooked the achievements of a man whose contributions to the cheese industry and to the development of an important community in southwestern Manitoba were outstanding. George Morton, known in 1874 as the "Cheese King of Canada," and after 1886 as the "Father of Boissevain," sold some \$480,000 worth of cheese to the "Old Country" in a single season. This was exactly 20 years before Perth's big cheese threatened to break through the pavements of London.

At the time of Confederation, Morton was the owner of a cheese factory in Kingston and a prominent cheese broker. Probably because of his acquaintance with that famous lawyer from Kingston, John A. Macdonald, he was successful in persuading the first Dominion government to place a duty of four cents a pound on imported American cheese. Henceforth he was "The Cheese King of Canada." Morton came to Manitoba in 1878.

Travelling in the vicinity of White-water Lake, 200 miles west of Winnipeg, and at that time outside of the province, he believed he saw possibilities for the large-scale production of cheese on the haylands bordering the lake shore. Returning to Kingston, he persuaded a number of business men to invest in the Morton Dairy Farm Company. From John A. Macdonald, Minister of Interior as well as Prime Minister of Canada, the company received permission by an order-in-council, dated May 20, 1881, to purchase a tract of government land under the colonization regulations then in force.

Morton is unique among the many colonization promoters of the eighties in that he conceived a prairie settlement supported entirely by the production of cheese. Next to the manufacture of the mammoth cheese at Perth, his project is probably the most ambitious cheese-making venture ever to be attempted in Canada.

EACH settler was to begin operations with a quarter section of land and a small herd of dairy cattle supplied by the company. Land and cattle were to be paid for from the proceeds of the milk processed at Morton's cheese factory. Morton purchased a sawmill at Max Lake in the Turtle Mountains to saw lumber for housing the pioneer dairymen and their herds. He bought good prairie land near the mountain and close to Brondgeest's grist mill to provide the colony with feed and flour. A townsite was laid out on the shore of Whitewater Lake to give the colonists a community and business center. A narrow gauge railway was planned to bring in the milk to the factory from every farm. All in all, Morton seems to have planned to provide for every possible contingency.

Actually, and unfortunately, he overlooked two factors essential to the success of his project. The first was transportation to far-away markets for



One of the Morton enterprises enumerated by the author.

[Photos courtesy E. I. Dow.]

the cheese. Second was the experience needed to winter dairy cattle successfully in the vigorous prairie climate.

In later years, Morton insisted that when he completed the negotiations for his land in 1881 the C.P.R. assured him that they would have a railway into the cheese colony within a year. However, at the end of 1882 the end of the Pembina Mountain branch was still at Manitoba City (Manitou), more than 75 miles away. Not until 1885 did the line reach Cherry Creek, now Boissevain, still a dozen miles short of the Morton Dairy Lands. During 1886 the railway was extended 20

the new townsite with the store he had hauled in half a dozen miles across the prairie from Wassewa. During the next year he built a flat grain warehouse and added grain buying to his long list of ventures. By this time he was 66 years old, an age at which many social theorists claim that a man has nothing further to contribute to society, and should retire to make way for younger men. Two years later, in 1888, he built a grain elevator at Whitewater, thus cutting in half the long trip settlers on his lands had to undergo to take their grain to Boissevain or Deloraine.



A Boissevain pioneer, circa 1900.

miles or so further west to Deloraine, but instead of going through Morton's settlement, it passed south of Whitewater Lake.

Had the railway reached Morton's colony three years sooner, it would still have come too late to be of any use to the cheese project. In fact, in its very first year the venture received a mortal blow.

DURING the summer of 1882 the dairy colonists brought in 1,000 head of cattle, some from Emerson and the rest from Brandon. The farmers from Ontario built corrals walled with swamp hay, but open to the sky, to stable them. Instead of allowing the cattle to run at large to keep warm the dairymen packed them closely into the corrals. When storms and sub-zero weather set in hundreds of cattle were frozen to death where they stood, and the carcasses remained unburied until the frost left the ground in the spring.

This heavy loss ended the cheese project. H. H. Smith, a Dominion Lands official at Winnipeg, reported to Ottawa in 1884 that "Operations (on the Morton Dairy Lands) are at a standstill and everything in the way of cultivation and improvements are rapidly becoming valueless through neglect."

Bitter experience proved to George Morton that his cheese-farming venture was impractical but it did not destroy his faith in other agricultural possibilities of the Turtle Mountain region.

In 1883 he bought a store at Waubeesh, nearer the present Boissevain, and invested in another store and sawmill a few miles south near Turtle Mountain. Because he thoughtfully kept a beacon burning above this store to guide travellers across the plain on stormy nights, the Indians called it Wassewa, "Burning Light," and the location bears the name to this day.

When the railway reached Boissevain in 1885 Morton was already on

In 1890 Morton was awarded first prizes at the Winnipeg Provincial Fair for grain and livestock he produced on his own farm.

George Morton is justly remembered as "the Father of Boissevain." To the end of his life he was actively engaged in community affairs and keenly interested in the welfare of his pioneer neighbors. When 70 years of age, he travelled to Ottawa to persuade his Conservative friends in power to remove what was in his mind an injustice to his farming community, the tariff on twine. Boissevain residents were ready to lay odds in scarce cash that he would succeed in his mission.

On December 3, 1891, Morton performed his last service to his community. He presided at the nomination meeting for the annual elections in Morton municipality, organized less than a year before and given his name.

A day or so later, this seemingly indefatigable old man set out for Port Arthur on a business trip. Taking ill on the train, he was brought back to Boissevain, where he died on Sunday, December 22, 1891.

Many tributes poured in to the editor of the Boissevain Globe. Most fitting and certainly most quaintly appealing of all was this one:

"Honored by those who knew him,
A friend indeed was he,
His death is felt by everyone,
'Tis felt by you and me."

George Morton—cheese manufacturer, colonizer, merchant, grain dealer, farmer and public servant—with his vision and enterprise made two valuable contributions in two widely separated parts of Canada. To eastern Canada he showed the way to an industry which had contributed substantially to the wealth of many districts. To the newer West he gave an example of that leadership and determination without which its development could not have proceeded.



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IN the year 1934 there arrived at Langley Prairie, British Columbia, a young man interested in lily culture. Having tried the South and East he was now ready for a western experiment. Accordingly Alwyne Buckley made a down payment of \$10 on 40 acres of bush land with a one-roomed cabin. Today Esperanza lily gardens are known all over the world. People come from distant parts to see the lilies in bloom. There is a steady demand for bulbs and seeds.

The result has been made possible through the combined efforts of Mr. Buckley, his wife and sons. For in the beginning everyone worked all the time to bring about the results so evident today. They cleared the land, built their own home, cultivated the lilies and went to bed exhausted but hopeful!

At first the bottom land was considered more suitable for growing the lilies, but later it was found that lilies grow just as well on a light, well-drained sandy soil. The ground must be so well drained that after the heaviest rain, no water appears at the end of an hour.

The present area under cultivation is about 15 acres. The rest of the land

Auratums of Esperanza

A B.C. bush farm becomes an internationally known garden after 15 years of development

by ANN HANLEY

has been left to woodland for protection from frost and wind and to conserve moisture. Here and there in the woodland are small, well-drained areas devoted to propagation and seed raising. The three sons have houses around the home bungalow and have now taken over the management of the business.

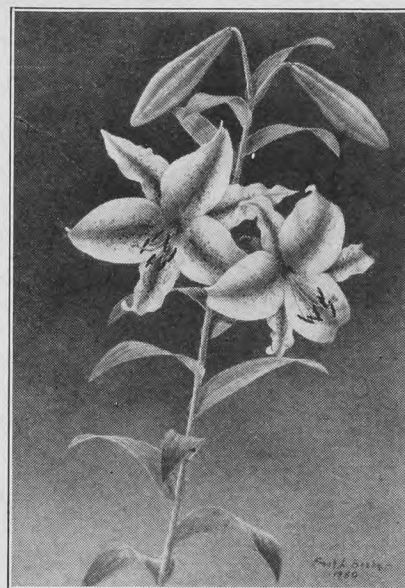
The original growth on the bottom land was chiefly willow, alder, birch and cedar. Higher up there was a growth of Douglas fir, but a brush fire swept this away soon after the Buckleys arrived. Later this also grew up with birch and maple.

WHEN the Buckleys arrived in Langley, there was a question whether the Easter lily would grow as far north as British Columbia. Inquiries unearthed the information that Croft was being grown on Vancouver Island. They were able to purchase stock of these at Oyster River. The first efforts had to be guarded against the inroads of deer which roamed the woods. Soon the Crofts were given up for Auratums. The first five pounds of seed of this lily were obtained from Henry Warda of Japan. From these have developed varieties much improved to the Japanese. Only stock grown from seed has been used in this venture, in order to avoid risk from lily diseases.

During the war it was not possible to obtain seeds from Japan. Afterwards it was discovered that the Warda holdings were wiped out. It is only in the last year that the Warda business has been resumed, seeds have been collected from the hills for new stocks.

At first the Buckleys had a greenhouse for the propagation of plants from seed. Lately they have not used this, but raise their plants in the open. Their large log storage and packing shed conveniently placed in its back-ground of shrubbery is an indication of how much business they have developed.

In preparing his fields for lily culture, Mr. Buckley says the condition of the soil rather than its character



[From a drawing by Frank L. Beebe.
Lilium auratum.

is of greater importance. He has seen fine lilies grown on celery land, alder bottoms, light sand, even clay. So he manures, plows his land, then sows to peas in the spring or vetch and rye in the fall. When green and lush he applies superphosphate of lime and plows under. During the summer this fallow is cultivated to get rid of weeds. In the fall it is ready for bulb planting. He recommends, however, for the colder interior of the province, the planting of bulbs later in the fall, so that they go into winter in a dormant condition.

THE tendency of all Easter lilies to maintain a green shoot in winter, whenever the soil is moist, will pull the plant right out of the ground. The secret of raising these lilies in the colder latitudes is the blanket of snow. Wet soil is injurious, but this can be overcome by using raised beds, which keep the bulbs warmer, but have to be mulched with peat to retain moisture. Where they are warmer a healthier root system develops. Otherwise they should be planted in August, in a sunny position, as they prefer sun and good ventilation. Bulbs are planted deep or shallow according to whether they are required to raise bulblets or blossoms. Large bulbs intended for sale are grown three inches down. To produce bulblets planting six or seven inches deep is the rule in order to pro-

vide the warmest place for the bulblets to form. A pocket of sand under each bulb ensures a dry bed.

At present English markets prefer the lily longifolium bulbs and find them better sellers than auratums at Easter. Much like the taste for double violets in Philadelphia, no doubt, which has intrigued florists for years! But Mr. Buckley says after growing auratums for 14 years he never has enough to satisfy his customers, so auratums remain his first and last choice. Little wonder, a collection of forced liliun longifolium ready for the Easter market is thrilling enough, but the sight of a field of auratums in all the glory of their midsummer dress, the touch of rose and gold setting them apart, is just as breathtaking as their rich perfume!

Hundreds of hybrids have been grown in the Esperanza gardens. Only those of superior quality are preserved. At least a hundred have now been considered worthy of registration with selected names. Every member of the family participating in this industry doubtless has his favorites. Ralph Buckley, the son who now manages the industry, lists his as: King of Tyre, Youth, Fogarty Fegan, Pomegranate, Swan, Carved Ivory, Sunburst and Phyllis.

Not only do the color markings vary, but the size and shape of individual flowers differ. For instance, Carved Ivory and the White Emperor both belong to the white group, but the former has narrow, pure white petals with orange anthers; while the latter, with a pure white flower nine inches across, has a buff-yellow ray lightly sprinkled with red at the tips and scarlet anthers. Sunburst and Fogarty Fegan belong to the red group, but where Sunburst with white background has a center of green and yellow shading into flame scarlet with red on the tips, Fogarty has an unusual white throat with two-thirds of the ray, pomegranate-purple spreading over the white. Phyllis on the other hand has a star-shaped flower the tips deep red, the center light.

Two outstanding types are considered distinct sports in the auratum family. Green Treasure with a mignonette green foliage has a flower of deep bell shape, glass-green to seafoam green in color. The ground is white, the ray olive yellow at the base, shading into seafoam green at the tip. The perianth ends in a tight curl, while the anthers are English red. Another unusual one not yet named is a tall clone, growing very tall with white golden-rayed flowers.

Although auratums form the principal strain, liliun speciosum is also raised at Esperanza. Closely related to the auratum, this lily will cross-pollinate freely with it, so that it is useful as a pollen-bearing parent for introducing new blood into auratum stock. Regale is also raised here from seed. The same care is taken with all these strains to protect them from disease. To see is to believe the beauty of this experiment.

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Are You Allergic?

Different people react in many different ways to a variety of substances, sights and sounds

JEAN BAXTER, a 25-year-old florist's assistant, suddenly contracted "tulip fingers." When she touches a bulb her fingers swell and her hands begin to itch. The doctors can do nothing for her except advise that she should not handle tulips.

This hypersensitive condition, present in some people, which makes them susceptible to certain influences causing illness or disease is known as allergy or atopy, a word derived from the Greek, meaning "strange disease." Different people are affected in different ways, and in most cases doctors can do little for the victim.

Recently a farm worker's hands swelled enormously while he was lifting potatoes in a field. He had to cease work, but when the swellings disappeared he returned to the job. Again his hands swelled, and this continued with such regularity that his doctor is convinced that he is allergic to potatoes. But he can't cure the man.

The human race has suffered from allergy of one sort or another for centuries. Greek writings dated 600 B.C. give accounts of asthma, and as asthma and hay fever are closely linked, the ancients doubtless suffered also from the familiar summer scourge.

As I write this article I am in the throes of a hay fever attack by which I am often affected. My first attack is only too vivid a recollection. I motor-cycled to a lovely spot where I stopped to lunch and read my Sunday papers in a field of marguerites. The breeze must have wafted the pollen into my nostrils, for within an hour I had rocked with hundreds of sneezes, and on my way home had to stop dozens of times to avoid running off the road because of sneezing attacks. Now I shun marguerites.

ALLERGY is an all too common complaint, for one person in every ten is allergic to something. One dare not eat strawberries for fear of breaking into a painful rash; another avoids mushrooms, which cause hives; ducks' eggs poison a third, who can eat fowls' eggs with impunity. All sorts of harmless foods that millions eat with enjoyment are deadly to a few.

One man's meat can literally be poison to another, for I know a boy who is violently ill if he touches meat.

Recently a child was given a spoonful of a new cereal and her lips and throat swelled before she could swallow it. It was analyzed and found to contain flaxseed; so poisonous was this to her system that had she eaten a single mouthful, she might have died.

But people are allergic not only to foods and pollens. Maria de Medici, Queen of France and mother-in-law of Charles I of England, could bear neither the sight nor the scent of roses, and she died of an illness caused by the sight of a rose painted in a picture! Roses seem to be fatal to many. Both Cardinals, Don Henrique de Cardona and Oliverius Carassa, were affected in the same way, and Carassa gave instructions that any servant bringing roses into his palace should be punished by torture.

Strange as it may seem, even sounds have the power to cause distress. It is

well known that Mozart became ill if a trumpet was sounded in his presence, and an old history records that a chevalier of Alcantara invariably fainted if he heard the word "wool." Sergei Rubinski, lecturer at the Sorbonne (1850-1924), could never have represented a certain power at the United Nations conferences, for he became violently ill if he heard the word "no," or saw it in print. Philip Lennard, winner of the Nobel Prize for Physics, was another. He winced and became ill if the name Newton was mentioned in his presence. This must have been particularly unfortunate, as Newton was a distinguished scientist.

The people whom these sounds affect are not poseurs. Their agony is genuine. Though he could not account for it, King Frederick VI of Denmark had a rooted antipathy to spectacles; the mere sight of them made him ill.

We still have much to learn about both the mind and body. Allergy, which affects one at any age, can mar health and happiness.—Harvey Day.

The Wolf Menace

A CONTRIBUTED article, "The Wolf Menace," which appeared in the May issue of The Country Guide said in relation to wolf control in Alberta: "The Alberta government considered that the price of the skin was sufficient incentive to kill wolves." A reader challenged this statement, and a query from The Country Guide to the Alberta Department of Lands and Forests brought the following comment:

"This department has been paying bounty on wolves for many years. The records show the take of wolves from 1941 to the present time as averaging well over 1,000 wolves for which bounty was paid. The bounty paid has varied from \$10 to as high as \$25, and at the present time we are paying \$15 during the summer months and \$12 during the winter months, the difference being made up in the value of the fur in the winter. It is interesting to note that after having paid \$10 for wolves during the years 1944, 1945 and 1946, we raised the bounty in 1946 and 1947 to \$25 and the overall cost to the government was approximately the same, which meant that during the year 1946-47 less than half the number of wolves were taken than in the previous two years. In 1947-48 it was reduced to its present level where it has remained since, and the take of wolves in 1947-48 was more than double that of 1946-47 in spite of the reduction in the bounty. From these figures and from figures we have obtained from various states and provinces it is found that the amount of the bounty on wolves does not affect the final take.

"I would also explain that this department is taking other action against wolves by the use of sodium cyanide guns, trapping and shooting by our own personnel. I am just now in receipt of a report of one of our forest officers in the vicinity of Entrance, who has taken 19 wolves in the past two months. This man is only one of many working on this problem throughout this province."

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Wild Duck Crop

Continued from page 10

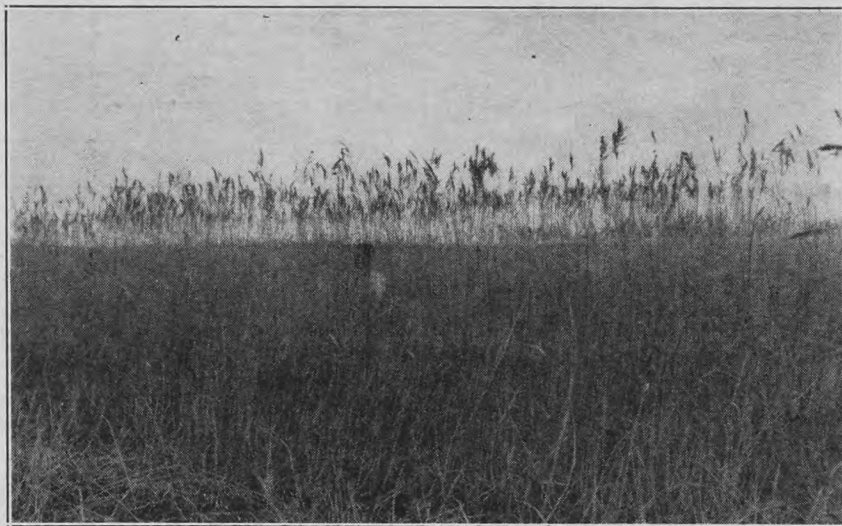
I saw a hundred or more of them of mixed species on the big pond just south of the hatchery at Delta.

Nearby was a small area for captive birds held temporarily under observation, which was completely wire enclosed. At the far end of the pond is the only waterfowl decoy of its kind in North America. Not far from the pond is the lodge, a building once used by the Duke of York (afterward King George V), but recently hauled across the marsh over winter ice, and serving not only as headquarters building, but as accommodation for visiting students and technicians. Opposite the hatchery, on the other side of the road leading through the village of Delta to the Station and along the sandy ridge, are located two or three modest houses in which live Dr. Hochbaum, Peter Ward, hatchery superintendent, and perhaps others of the permanent staff. In addition, there is a low building of extremely modest proportions, which serves as housing for the laboratories and offices. Also there are summer cottages and one-room shacks for eight families and ten bachelor students.

THE Station population numbers about 50 during the active summer months, when up to 18 or 20 biologists will be resident there, some of them with their families, during the active research season. The chances are that the full complement of researchers will be busy at Delta as this article is read. At the time of my visit early in May, there were, in addition to the Director and the hatchery superintendent, Arthur S. Hawkins and Edward Wellien, flyway biologists representing the U.S. Fish and Wild Life Service, Washington. There was also Bernard Gollop, Canadian Wild Life Service, Ottawa, but stationed at the University of Saskatchewan, Saskatoon. These biologists were engaged in making a wild life count in Manitoba, and I was surprised to learn that it is practicable to secure a fairly reliable count from the air, by species, when flying at the height of about 100 feet. Ground counts are also made for checking purposes, but the air count is, of course, much speedier. Others at the Station were Rex G. Schmidt, photographer for the U.S. Fish and Wild Life Service, Washington, who was engaged in securing photographs for a wildlife movie. Alec. Dzubin, a graduate student from the Department of Wild Life Management at the University of British Columbia, is serving as an assistant at Delta with a view to completing some original research which would earn him an advanced degree. The Game and Fisheries Branch of the Department of Mines and Natural Resources was represented by an undergraduate student at the University of Manitoba. Graduate students from the University of Wisconsin, Minnesota, Missouri and Cornell also come regularly to Delta for periods of from two to five years, all of which, in the opinion of Dr. Hochbaum, thoroughly squelchs the idea held by many sportsmen that college men learn their business from books.

The Delta Waterfowl Research Station was founded by James F. Bell, a Minneapolis industrialist and sportsman, who first visualized the Delta

marsh as an admirable site for the scientific study of waterfowl. Today, the Station is supported financially by Mr. Bell and by the North American Wild Life Foundation. This organization will shortly carry six Canadian directors of which Col. Arthur Sullivan, Winnipeg, is the only actual appointee to date. In 1938, Dr. Hochbaum, then a graduate student under the late Aldo Leopold of the Cornell University, was appointed as station director. It is to be noted—though reluctantly—that the contribution to waterfowl research by the Government of Manitoba, in which province waterfowl represents a valuable natural resource, has been negligible, and that made by the University of Manitoba, practically nil.



A bed of tall, golden phragmites silhouetted against the sky at Delta.

SEVERAL bits of very interesting information were added to my store at Delta. One of these was that the folk there regard ducks and waterfowl generally as a harvestable crop. I had never thought of that, and the chances are that you haven't either. Moving the subject a step nearer agriculture, waterfowl research is really the study of land use—in this particular case, how to use to advantage, 36,000 acres of marshy land in one block, and any other blocks of similar land anywhere in western Canada. We can even move right over into agriculture, for that matter. Dr. Hochbaum informs me that breeding ducks must disperse: they simply will not nest too close together. Moreover, the finest possible breeding grounds for some species of ducks is good average farm land near water. The Station has a research project under way in the Minnedosa area of Manitoba, in what they speak of as the "pothole country." This, Dr. Hochbaum says, presents one of the finest breeding grounds for waterfowl in all of North America. Ducks, he told me, are not afraid of people, if they are not molested. They are quite likely to nest somewhere around the farmstead, if they are not frightened away; and he was quite certain that when this pothole research project was completed, they would really be able to increase the dollar and cents value of potholes.

Waterfowl specialists tell me that there are four great natural flyways, which migratory waterfowl follow in their flights north and south. The Delta marsh at the south end of Manitoba sits spang in the middle of one of these. We can make money from our duck crop if we want to and will go at it, notwithstanding that part of the crop can take wing and fly away out of reach of our guns.

The secret, says Dr. Hochbaum, is in research and in wise game law administration. Manitoba has already profited by the work of the Delta Station, because it was the work done at the Station on the nesting of waterfowl, which proved that too early opening of the waterfowl season (September) caused needless slaughter of young birds not fully grown. Because of this the opening of the season was delayed until early October, with good results.

The farmer, of all people, should be a good conservationist in his own interests. In large measure what is good for ducks is good for him, and vice versa—trees, water, plenty of birds, good soil and crops. It is true that waterfowl sometimes consume

ago, we hunted for meat only. Then came a period when we did our hunting in a leisurely manner, for sport. Since the thirties we have been in a period of high-pressure duck gunning, and with this period came the need-less killer and the noisemaker. The consequences of this concentrated gun pressure are becoming increasingly serious.

Again, Dr. Hochbaum: "What it all adds up to is this: we must save the populations of the north. We must build up populations in the southern and now largely unproductive portion of the range. Today, we are doing neither. The marsh lands of the north are being exploited; there is little effort to improve breeding conditions in southern areas. As long as we exploit, as long as we operate under the present plan, new marshes in the north, however vital and important they are in the over-all waterfowl program cannot long delay the continued decline of waterfowl numbers.

"One thing stands out as clearly as green bulrush and yellow prairie: a new plan must protect the place and the bird at the same time . . . the change cannot be postponed much longer; we cannot much longer hold that a community does not have the same responsibilities to its waterfowl as it does to its muskrats."

Elsewhere Dr. Hochbaum had said "there is much to be done in the management of land for ducks, but there is much more to be done along the lines of fact-finding and education. The real and pressing problem today in waterfowl conservation is the management of man himself, the management of the harvest."

Reading the Weather

MAN'S material progress, according to Sir Robert Watson-Watt, the inventor of radar, is very largely controlled by the weather.

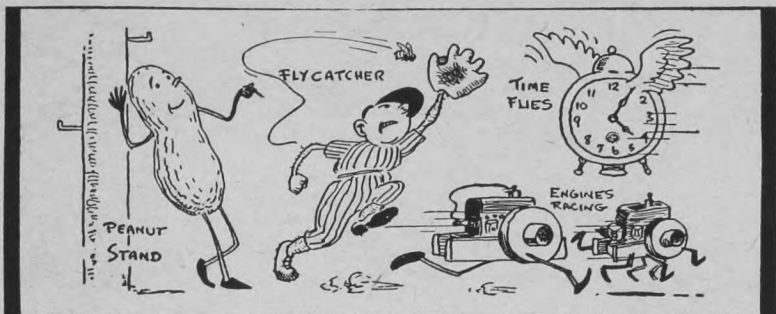
At first, weather observations were taken from points on the earth, not only at ground level but at the highest points of mountain peaks that could be regularly reached, because it was already realized that weather was formed in the upper air. Later came thermometers and instruments for measuring humidity. The next step was to send up a self-recording meteorological observatory, suspended from a toy balloon. When the balloon eventually burst the apparatus floated to the earth, where it was picked up and its tiny graphs of temperature, humidity and pressure deciphered by the meteorologists. Later, a French meteorologist had the idea of adding a radio-sending station to this small air-borne observatory. The radio station sent out a three-tone tune, one note varying with the pressure, the second with the temperature, and the third with the humidity. Scientists could then sit at a radio-receiver below and read off these changes up to 60,000 feet, or more, in the air. Finally came a radar device measuring distance and direction, by means of which all necessary information was immediately received and recorded at a ground station. Thunderstorms send out noises that can be picked up by radio thousands of miles away, and the position of a rainstorm can be determined by sitting in front of a centimetric radar set, watching the radar echoes from rainclouds long distances away.

substantial quantities of grain. They don't see anything wrong in it; and it is quite impracticable to train them not to eat when they are hungry. Undoubtedly, this fact poses a problem to which no one yet has the answer. One thing is sure, however; if the answer is ever found to the problem of conserving ducks and the farmers' grain at the same time, it will come through research.

OUT at Delta they have done some queer things in pursuing the study of ducks. Lyle K. Sows, until recently senior biologist at the Station, devoted several years to the study of their nesting habits. To keep track of the duck families he was studying he developed techniques for capturing the parent birds and painting their wing feathers for identification anywhere they could be seen. A method for marking the ducklings before they were born was also developed by a student from the University of Minnesota. He injected a harmless dye into the shell of the egg, so that for weeks after the ducklings arrived they could be identified by their brilliant, but unnatural, coloring. Sows also studied the nesting losses due to crows, skunks, ground squirrels and flooding, and discovered that of 206 nests representing nine species of waterfowl located during a two-year period, only 35 per cent hatched. He used different colored celluloid leg bands for identifying loafing birds, and this, together with 39 combinations of wing painting involving three colors, led him to a great deal of useful information about the re-nesting habits of different species.

Dr. Hochbaum says that we are now in the third period of waterfowl history on this continent. In the first period, ending about 30 years

The Country Boy and Girl



A VERY special member of our family will be remembered this month—June 17 is Father's Day. In some small way you will let him know that he has not been forgotten. You may give him a little gift or make him a special card to let him know that you are grateful for his love and care.

Here's some drawing fun for you and your friends for rainy days or parties at home or school. Each person is given a large sheet of drawing paper, pencil and crayons. Then you ask each one to pull a slip of paper on which you have written a saying which is to be drawn, for example—chimney sweep, time flies, board walk, fly catcher, jail birds, book worm, have a heart, home on the range, cut the deck, light house and many more sayings which you can think up. We have sketched four of these ideas for you so that you can see how funny these drawings can be. Choose a few of the best ones to display on the wall or to receive a prize.

Ann Sankey

Pink Lady Slipper

*Did some dainty maiden fairy
Lose her slipper light and airy?
A fairy Cinderella who perchance,
Tarried at a fairy dance;
Heard the harebells toll the midnight,
Homeward sped in hurried flight;
And lost her slipper frail and pink,
By the brooklet's mossy brink.*

—VERA DANA.

Kippy Kerrigan's Birthday

by Mary Grannan

THE funniest thing happened to Kippy Kerrigan. You'll laugh when you hear about it. I laughed when I heard about it. Kippy's still laughing.

Kippy Kerrigan was a nice little boy, and because he was a nice little boy, he had many friends. He was very obliging, and was always happy to help anyone who needed him.

It was nearing his birthday, and everyone who met him said, "What would you like for your birthday, Kippy?"

Kippy gave the same answer to each one. "I'd like a rabbit. A white rabbit with pink eyes and long ears and a puffy tail. I'd call him Willie."

His mother and father knew that Kippy would like to have a rabbit, and they talked the matter over. Mrs. Kerrigan said, "Why not give him a pair of rabbits, dear? He'll look after them himself. They'll be no bother."

Mr. Kerrigan agreed and said that he'd build a nice cage for them in the cellar. "Don't let him go to the basement. We'll keep this as a secret."

Mrs. Kerrigan ordered two rabbits at the market the next day, to be delivered to Kippy on his birthday. Mrs. Leyton next door knew that Kippy wanted a rabbit for his birthday. "He's been so kind to me," she said to her husband. "He runs all my errands, and will never take a penny for them. I think I'll give him a rabbit for his birthday."

"Make it two," said Mr. Leyton. "I'll give him one to keep Willie company."

Mrs. Leyton called the market the

next day and ordered two rabbits to be delivered to Kippy on his birthday.

Around the corner, in the little stone cottage lived Miss Perkins. She was talking with the grocery boy in the kitchen. "Jimmy," she said, "do you have rabbits for sale at your store?"

"No ma'am," said Jimmy. "You get rabbits at the market." He laughed. "Are you going to get one for a pet, Miss Perkins?"

Miss Perkins laughed too. "No, Jimmy," she answered. "I'd like to get one for Kippy Kerrigan. He wants a rabbit for his birthday. And he's been so kind to me. He mows my lawn and he won't take a penny."

"I could get a rabbit at the market for you," said Jimmy. "But if I were you I'd get a pair. A boy would enjoy having a couple of rabbits, twice as much as he'd enjoy having one. And they don't cost much, Miss Perkins."

"Then, will you get two for me, Jimmy? Charge them on my bill, and send them to Kippy's house on the morning of his birthday." Jimmy promised he would look after the purchase and delivery of the rabbits.

At recess in the school yard, that same day, Peter White and Danny Green were talking together. Kippy came running toward them. "Hey," Kippy called, "come on and play ball. We're making up a team. Will you be on my side? I'm captain."

Peter and Danny shook their heads. "We're busy, Kippy. We'll play at noon time." Kippy nodded and dashed off in search of other players. Danny said, "and I've saved 50 cents to get him a present, and I know exactly what I'm going to get him, too. A rabbit."

Peter's face fell. "But heck," he said, "that's what I was going to get him. I have saved 50 cents, too."

Danny smiled broadly. "All the better. You get a rabbit too. Then he'll have a pair of them. If I were Kippy, I'd like to have a pair, wouldn't you?"

Peter agreed. That day after school, they ordered two white rabbits. "We'll pick them up on Kippy's birthday," they told the man at the stall.

Kippy's birthday arrived at last. Early in the morning, while Kippy was having his breakfast, the express man arrived. "Here's a crate from Millville," he said, "two white rabbits for Kippy Kerrigan, from Mr. and Mrs. John Kerrigan."

Kippy squealed in delight. "Oh, oh," he said. "Uncle John and Aunt Alice have sent me rabbits. Two rabbits. They're just what I wanted."

Kippy's mother and father looked at each other but before they could speak the market truck drove up to the door. The driver took three crates from the truck. "Rabbits," he said as Kippy ran to open the door. "Two from Mr. and Mrs. Kerrigan, two from Mr. and Mrs. Leyton, and two from Miss Perkins. Sign here."

Kippy howled with laughter, as he began to count the rabbits. "One, two, buckle my shoe, three four, shut the door, five six, pick up sticks, seven eight, lay them straight. Eight rabbits. Oh happy happy birthday!"

Before Mr. and Mrs. Kerrigan could get their breath from the surprise of it all, Peter and Danny came in through the kitchen door. "Happy birthday, Kippy. We've a surprise for you." And from behind their backs, each brought a rabbit.

Kippy couldn't laugh any harder than he was laughing now. "I've a surprise for you, too. Look. I've already got eight rabbits. Now I have ten. Say, Peter and Danny, isn't it wonderful. We can have a rabbit ranch, or a rabbit circus."

Peter and Danny nodded. They liked the idea, but Mrs. Kerrigan didn't. "Kippy," she said. "You don't think for a minute that you're going to keep ten rabbits."

Kippy looked at his mother with wide eyes. "But I've got to keep them, Mum. They were birthday gifts. I can't hurt the feelings of my friends."

"I think your friends will understand," said Mother. "Now you and Peter and Danny sit down together, and plan some way to get rid of these rabbits."

The boys hit on a plan that was fun. They auctioned off the rabbits. With the money Kippy got for them he bought a baseball glove and bat.

Everyone in town was laughing the night of Kippy's birthday. Kippy's still laughing.

Composition and Color

No. X of a Series

by Clarence Tillenius

A PICTURE well composed is one that pleases the eye. In landscape painting, a large mass of trees on one side of a picture could be balanced by a small dark figure or a spot of interest set well over to the other side. A drawing with similar objects on both sides of the picture and equally spaced from the center (as at B) would not likely be interesting, though there are no hard and fast rules about composition.

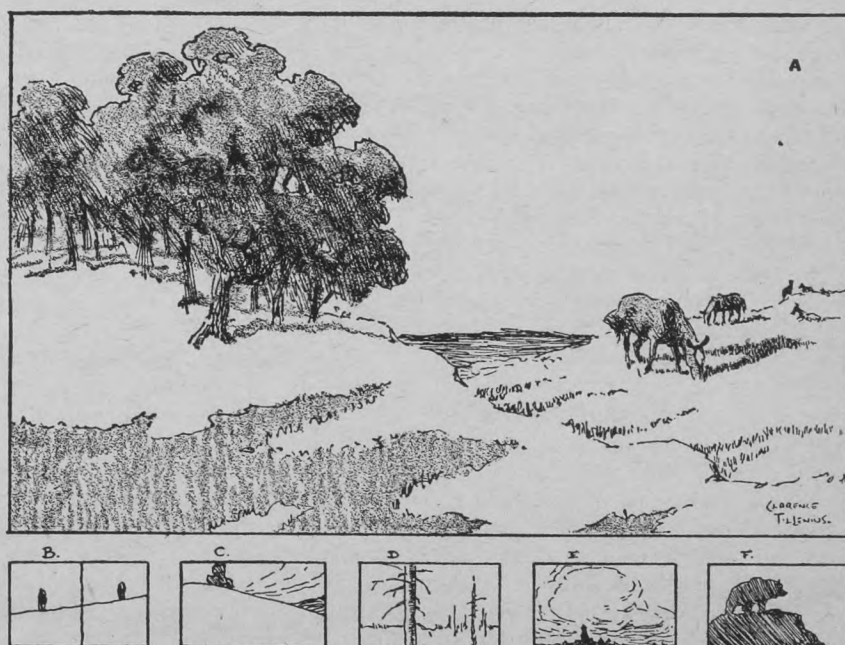
At A is a landscape with trees in the foreground and horses grazing on a distant hillside. You will notice that as you look at the picture your eye comes to rest on the horses. This, then, is the "spot of interest." All the lines, trees, shadows, etc., seem to lead toward the animals.

If you find a view of country that seems to "make a picture" and wish to introduce animals or figures into it, you must place them so they do not seem to "jar" your eye. In other words, you must not introduce anything in the picture that seems not to belong there.

It is always a temptation to try to get too many things into a picture. Keep it simple: it will be more effective. A single figure or shape silhouetted against the sky is often very striking. C, D, E, and F are "thumb-nail sketches." Try making some.

As to color: Bright colors are best used sparingly, as small spots—they will appear all the more brilliant against the more subdued or greyer colors used for larger areas. See how the first dandelion in spring shows up against the grey-green grass; or look at a mallard duck flushed from a bed of dry reeds. Notice how brilliantly the purple-blue-green wing patches with their white borders show up against the streaked brown of her plumage, and the yellow grey of the reeds.

These color harmonies are everywhere in nature, and you must look constantly for them.



THE *Country* GUIDE

with which is incorporated

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Tax Alternatives

The most contentious feature of the recent budget seems to have been the increase in the general sales tax from eight to ten per cent, a change which will enrich the federal treasury by an estimated \$105 million in 1951. Opposition groups tried vainly to persuade the minister of finance to accept alternative taxes because of the effect an increased sales tax will have in increasing the inflationary pressures now at work, but to all appeals he has remained deaf.

One of the alternatives placed before the House was a tax on undistributed profits. The net profits after taxes recorded by Canadian corporations in 1950 reached an all-time high of \$1,402 millions, of which \$672 millions was distributed as dividends and \$730 millions retained as undistributed profit. The total of undistributed profits for the last nine years is given as \$4,648 millions. The minister refused to tax this rich source of revenue, as is done in the United States, on the ground that corporation taxes are now high enough. In eight out of ten Canadian provinces they hover about the 50 per cent mark. Out of undistributed profit comes the money for the expansion of Canada's industrial plant, and the minister is loath to decrease it as Canadian industry faces the adjustments inseparable from rearmament.

Another suggestion was a higher tax on alcoholic beverages. The debates in early May produced some interesting information on the liquor trade. Canada's liquor bill for 1950 reached the astounding total of \$512 millions, 77 per cent higher than in the closing year of the war. Of this amount in 1950 the federal government took \$143 millions in taxes of various sorts, or 35 cents of the drinkers' dollar, the provinces, of course, taking another slice.

It would be expecting too much to find all the treasury income which the increased sales tax will yield from the liquor trade, but even half of it would not necessitate more than a 15 per cent increase in liquor prices. However, the parliamentary assistant to the minister refused to entertain the idea of higher liquor taxes on the ground that this trade was the first to feel the steep wartime increases, none of which have been abated. He contended that a distiller's product which sold for \$1.10, including his profit, and which retailed for \$4.25, was already burdened with a sufficient tax load.

This flimsy argument fades under the glare of a more serious one which appears to have been framed by Premier Frost of Ontario. All the provinces depend on the liquor trade for a big portion of their tax revenue. If prices of the commodity are raised by higher federal taxation, it is represented that the tax will reach and pass the point of diminishing returns. Higher taxes will probably mean less federal revenue, and certainly less for the provinces. The argument is between those who believe that people who want liquor will pay anything to get it, and those who think higher taxes on liquor will curtail drinking appreciably.

The issue will not be put to the test this year however. The huge government majority will see to it that the treasury's preference for a sales tax increase will prevail.

Postal Rates

From the viewpoint of Canadian publications, the new postal regulations are more serious than any of the provisions of the budget. Two months ago the Canadian post office doubled the rate on third and fourth-class mail. The change was made without any public hearings to determine its probable effect on various classes of business. It was not even put forward as an order-in-council, but

merely an arbitrary departmental ruling. It has already had a damaging effect on Canadian magazines, all of which are relatively small business enterprises operating on very modest profit margins.

Now there is to be a bill put before the House, probably before this reaches the reader, out of which Postmaster Rinfret hopes to increase his take by two million a year by increased rates on second-class mail. The combined postal increases to even some of the largest Canadian publications will approximate their profits for last year. Many of them which have resisted the temptation to pass their increased costs on to the subscriber will now be forced to do so. Others, not able to command higher subscription rates, may find the postal rate increases intolerable.

It is commonly known that Canadian magazines operate under severe handicaps against incoming American publications. Almost everything that goes into their mechanical production costs more, in part because of the Canadian tariff, in part because of the virtual disappearance of effective competition in some lines of supply. They do not enjoy the economies of mass production which American magazines have in their own populous country, and they have no large pool of talent from which to brighten their pages, nor access to new production techniques. Through conditions beyond its control the magazine business is the Cinderella of Canadian industry. It goes to the ball only in boom times.

In business there is a universal law that enterprises which cannot stand the pace must fade out and give place to those which can. We do not think this should apply to Canadian magazines face to face with more highly favored American publications. In season and out, Canadian journals maintain a purely Canadian point of view that must be cultivated if this country is to pursue national policies conceived in the interests of its own people. The difference between the treatment of the MacArthur affair in the American and Canadian press is a fresh example. Like every other country sworn to resist aggression, Canada has a close interest in the contrasting view on military policy between that illustrious general and his commander-in-chief, President Truman, but Canada was saved the emotional spree from which our good neighbor is painfully recovering because Canadian publications kept their feet on the ground. It is unnecessary to press further the argument for the healthy continuance of a Canadian periodical press.

It is to be hoped that members on both sides of the House will scan the Postmaster-General's proposals critically, and if his department needs more revenue, either to sustain overgenerous support of Trans-Canada airways, or for any other reason, some alternatives may be found which do not bear so oppressively on one sector of Canadian business.

Asking for Trouble

The troubles which the United States government is having over its new meat control regulations demonstrate the friction and confusion that are bound to arise from the application of selective controls.

The price controller in that country has ruled that meat prices must be rolled back ten per cent by October. Immediately he found himself in a hornet's nest. The packers' lobby, which is extremely powerful at Washington, attacked him at top levels. Wholesalers resorted to a variety of sly dodges to defeat the purpose of the regulations. Cattleman's organizations, unable to see why they should be selected for restraint while other prosperous groups went scot free, have threatened a delivery strike as in 1946, and nation-wide black markets. It remains to be seen whether the hastily improvised price control machinery is strong enough to surmount attack on such a wide front.

The whole sequence of events gives point to the representation made at Ottawa on price control by H. H. Hannam, president of the Canadian Federation of Agriculture. Because the Federation recognizes the unfairness of partial controls, and also because it recognizes the unwisdom of a price freeze as of a given date, with no regard to price movements up to that time, Dr. Hannam's statement is worth reprinting in full.

"It may be that in the near future the government will institute general price control. If so, such controls should be made effective on all prices, wages and profits. To exempt the returns of any one group would be to grant a privilege which cannot be justified; and secondly, great care should be taken to see that controls are applied equitably. There should be no freezing of all prices as of one date because it would be unfair to some commodity producers. When a four-week period was used as a base in 1941 agriculture was frozen in an inferior position. Calculated on a 1926-29 base, the ratio of farm and non-farm returns stood at 68, far below a balanced position. The same calculation would work out for 1950 at 98, two points below a balance with non-farm workers. In fact, seven months ago we requested the federal government to set up at once a competent body to undertake a continuous study of the position of the various groups and to make recommendations as to a fair base upon which to impose controls, if and when such are needed."

Unwanted Beer Parlors

It is quite obvious that the Manitoba Liquor Control Act requires amendment in at least one particular. People of that province have it brought to their attention that the granting of licences to premises for the sale of beer is entirely within the control of the Liquor Commission, and that communities which are overwhelmingly opposed may have beer parlors forced on them without the right of appeal. The grantee of a licence in such a case calculates whether the transient highway trade will offset the hostility of the community, and if he is satisfied that his interests will be served, he can proceed to flout local opinion.

The municipality of St. James has come to the end of a losing fight on this score. Practically every organization from the municipal council down has raised its protest, including the war vets who are not noted for being squeamish about the sale of intoxicants. St. James has discovered that the matter is entirely within the control of a body which is quite free to put other considerations ahead of almost unanimous local opinion. Any Act which legalizes control of this nature is an offense against democratic procedure, and it is to be hoped that the Manitoba legislature will recognize before the passing of the next session the dissatisfaction it can cause.

Reforming the House

Proposals to reform the Senate are never ending. Few people offer advice on reforming the House. Yet we have our own pet reform to put forward which we think will appeal to the majority of the electorate.

The debates on the Address and the Budget provide field days for the private members. They talk interminably about the beauty and the fertility of their respective ridings, the superior products it contributes to the national wealth, and the industry of its citizens. They ride their own hobbyhorses and break a lance on causes known to be unpopular at home. They clutter up the record with mountains of trash through which the serious student of politics has to wade despairingly. Nobody ever listens to these harangues. The House empties while the performance is on. That does not deter the private member who is achieving his purpose, which is to get his speech into Hansard. Free franking privilege then allows him to mail copies to the voters back home.

It may have been true before the day of widely circulated news that this kind of publicity helped to re-elect M.P.'s. It may have helped John Henry Bagshaw to hold Missanabi County, as related by Stephen Leacock. In the great and enlightened democracy to the south we have no doubt it helped Phineas T. Fogbound to become a Senator. Certainly Augustus Windheaver, member for North Willows, whose memory is enshrined by Saskatchewan's poetess, Sarah Binks, would have approved of it. But in these times we doubt if it guides the voter's hand on election day.

The reform we propose is to restrict the free distribution of Hansard. It will shut off the verbiage, hasten the execution of business, and shorten the session.